This draft is not an official SA Handbook. The views or conclusions expressed have not been through the complete review process and may be expanded, modified, or withdrawn at any time.

ARMY FOOD MANAGEMENT INFORMATION SYTEM (AFMIS) SYSTEM ADMINISTRATOR HANDBOOK

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1. INTRODUCTION

The Army Food Management Information System (AFMIS) system administrator/database administrator (SA/DBA) must provide all AFMIS end-users with an accessible and distraction-free computer environment. This requires that the AFMIS SA be familiar with operations of the SCO UNIXWARE operating system software, INFORMIX software, and AFMIS applications software database running on a COMPAQ Proliant. The AFMIS SA will be asked to respond to a variety of requests from end-users, who are unfamiliar with problems encountered in a data processing environment. Each of these requests must receive an expeditious and courteous response to preclude unnecessary processing delays, frustration, and loss of confidence in AFMIS.

1.1 Background

The *Army Food Management Information System, Systems Administrator Handbook* was first published in April 1994, as an informal reference guide. This revision presents all the implementation changes as they apply to the SA.

1.2 Objectives

This handbook is to provide the SA/DBA with a working guide to many responsibilities and procedures inherent in managing AFMIS. While much information is provided, it must be supplemented by the study of system hardware reference manuals, SCO UNIXWARE operating system software reference manuals, INFORMIX reference manuals, and AFMIS Computer Operation Manual (OM). A generous application of good common sense is also recommended. The objectives of this handbook are to:

- Clearly identify many of the SA/DBA technical responsibilities for the COMPAQ Proliant system, peripheral equipment, and the AFMIS application software installed on this equipment.

- Provide the necessary information or identify other publications where this information can be found, to assist the SA/DBA in understanding their responsibilities.

- Provide the necessary information or identify other publications where this information can be found, to assist the SA/DBA in the satisfactory performance of their responsibilities.

1.3 Applicability

This handbook was prepared, specifically, for the COMPAQ 1600 series. Portions of this handbook have been, specifically, designed for the AFMIS SA/DBA. This handbook, generally, applies to the operation of AFMIS at the installation level. AFMIS is a Standard Army Management Information System (STAMIS) which was not tailored for use at a specific installation. While references are provided to regulatory and technical documentation, no attempt has been made to duplicate all information available from these sources.

The SA/DBA must be concerned with all aspects of the Automated Information System (AIS) environment. The objectives of the SA/DBA include, but are not limited to, the following:

- Establish and maintain a formal record of all AFMIS automated data processing (ADP) equipment.
- Establish and maintain a filing system for maintenance agreements covering all AFMIS ADP equipment.
- Establish and enforce security procedures.
- Establish and maintain a tape library.
- Establish and maintain a Continuity of Operations Plan (COOP).
- Establish and maintain standing operating procedures (SOP) necessary for uninterrupted operation of AFMIS.
- System configuration (external and internal) management.
- System operation and maintenance.
- Training of end-users (functional and technical).
- Installation and application of upgrades to the operating system and application system software.
- Create, recreate, and maintain the application databases and data.
- Maintain application software directories.
- Analyze, report, and/or solve system and application problems.

1.4 Document Organization.

This document contains ten narrative sections. The sections are as follows:

- Section 1, Introduction, provides background information and states the objective and applicability.
- Section 2, System Overview, gives a brief synopsis of the AFMIS operating system and subsystems.
- Section 3, AFMIS Hardware, explains hardware setup and configuration as it pertains to AFMIS.
- Section 4, SCO UNIXWARE, gives a basic presentation of the operating system and system administration tools available to the AFMIS SA using Graphical Interface windows.
- Section 5, INFORMIX, provides an explanation of the AFMIS database structure and several examples of the structured query language database manipulation syntax.
- Section 6, AFMIS Directory Structure, gives a graphic presentation of the AFMIS file system structure.
- Section 7, System Back-ups and Recovery, provides back up and recovery procedures, as they apply to AFMIS.
- Section 8, Batch Process for AFMIS, outlines the processes the AFMIS SA must perform.
- Section 9, System Security, provides security measures to secure AFMIS.
- Section 10, Problems and How to Solve Them, provides a structured approach to correcting errors that occur in AFMIS.

Corrections, clarifications, or additions to this handbook should be submitted in writing to:

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2. SYSTEM OVERVIEW

2.1 Subsystem Overview and Interaction

AFMIS was developed to reduce waste, fraud, and abuse discovered in the Army Food Program by various audit agencies and enhances management and control of the subsistence management functions at the installation level.

AFMIS accomplishes these goals by providing accurate and comprehensive stock and financial accounting processes at the dining facility and Troop Issue Subsistence Activity (TISA) levels. A full range of interactive inquiries against system files, management reports, and processes permit each dining facility to conduct short and long term menu planning.

The AFMIS application is comprised of the following six interactive subsystems and an End-of-Day/End-of-Month (EOD/EOM) function:

Troop Issue Subsistence Activity	(TISA)
TISA Warehouse	(TISA-W)
Installation Food Advisor	(IFA)
Dining Facility Operations	(DFO)
Prime Vendor	(PV)
Decision Support System	(DSS)

All subsystems are located on the server. The TISA, TISA-W, and IFA subsystems interface by way of a shared database structure and data files. The DFO subsystem is supported by a separate, dedicated database structure and data files. The exchange of information between these two databases is accomplished by the automated "Send" and "Load" facilities within the DFO and TISA subsystems (EOD). Figure 2.1-1 depicts the AFMIS system hierarchy.

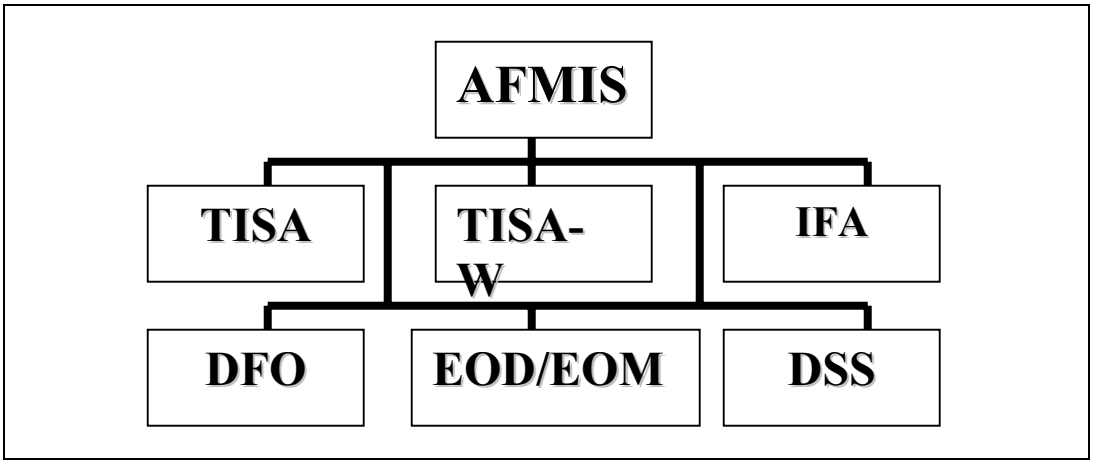


FIGURE 2.1-1 - AFMIS System Hierarchy

2.1.1 Troop Issue Subsistence Activity Subsystem

The primary purpose of the TISA subsystem is to ensure adequate supplies of food items (perishable and semiperishable) are available to support the installation dining facilities and other customers. TISA acts as a wholesaler to the consumers (i. e., dining facilities). TISA receives perishable and semiperishable merchandise from suppliers (local and regional); stores, accounts for, safeguards and provides it to the customer, when requested. The TISA subsystem interfaces with other automated systems to accomplish its support mission. (Figure 2.1-2). The TISA subsystem consists of seven functional areas that satisfy a variety of planning and operational needs (Figure 2.1-3). These functional areas are:

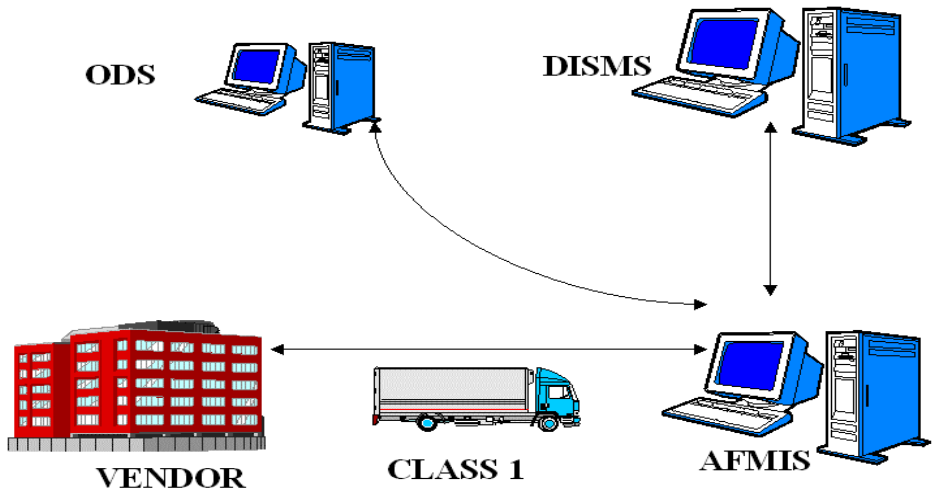


FIGURE 2.1-2 - AFMIS Interfaces

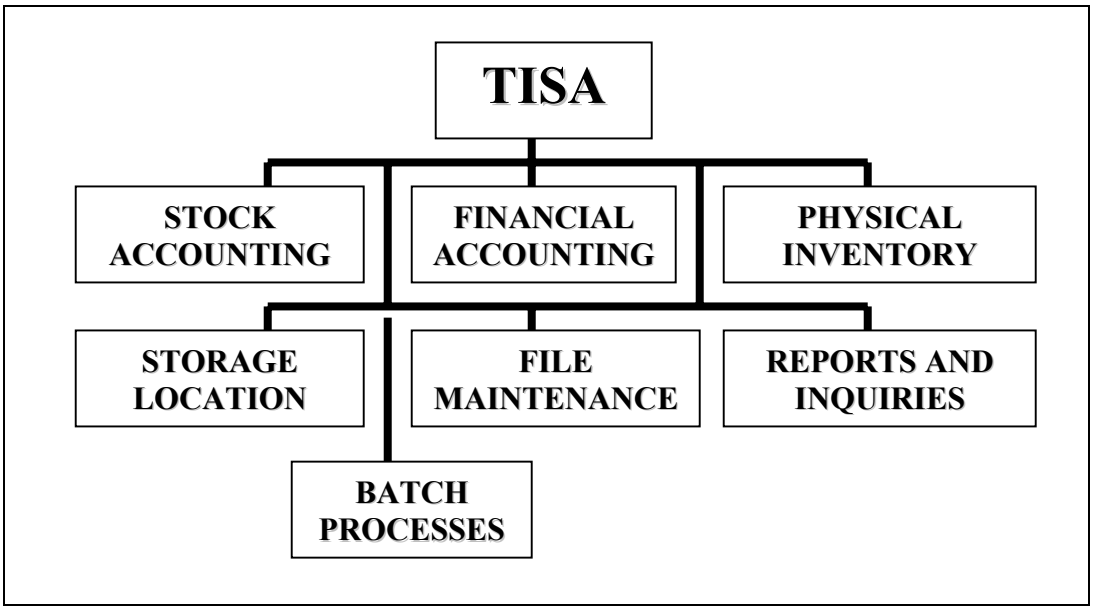


FIGURE 2.1-3 - TISA Subsystem Hierarchy

- Stock Accounting.

  This function provides processes that permit the TISA clerk to place orders for needed food items with suppliers; receive, issue, and account for food items from suppliers; establish audit trails to enhance physical accountability; and create adjusting documents to correct previously processed transactions.

- Financial Accounting.

  This function provides processes that permit the TISA clerk to query and adjust financial files and create management reports concerning the status of customer accounts and the TISA financial account.

- Physical Inventory.

  This function provides processes that assist the inventory team with the recording, entering, and comparing of physical counts. It also provides management reports on the status of the TISA inventory and adjusts the TISA physical accountability files.

- Storage Location.

This function provides processes that permit the TISA clerk to determine where merchandise is physically located; add, change, or remove locations; and produce reports providing information to storage personnel on what locations are available and where specific merchandise is stored. The process provides primary storage locations and two alternate storage locations for each item.

- Reports and Inquiries.

  This function provides reports that permit the TISA clerk to print the headcounts, required item price lists, and various other useful reports. Any report previously printed by the AFMIS TISA subsystem can be reprinted without rerunning the process.

- File Maintenance.

  This function provides processes that permit the TISA clerk to add, change, or remove information directly from selected AFMIS database files.

- Batch Processes.

  This function consists of processes that complete interactive processing, write to and read from tape devices, and transfer data between TISA/IFA and DFO.

- TISA Interfaces.

  The TISA is required to interface or communicate with several other systems in order to provide maximum support to each customer and pass necessary data. The TISA sends Defense Personnel Supply Center (DPSC) orders for merchandise, requests follow-up actions regarding merchandise ordered but not received, and requests cancellation of previously placed orders. The DPSC returns data), which notifies the TISA of current merchandise order status, price and packaging changes to merchandise, and informs the TISA when seasonal merchandise is unavailable. Manual interfaces (telephone calls) are used to place orders for fresh produce with Defense Subsistence Office (DSO). The TISA also interfaces externally with STANFINS to send financial data generated by AFMIS. The last interface the TISA is required to perform is with the DFO subsystem database. The TISA sends data used by the DFO subsystem to maintain the master files, update individual dining facility account records, and merchandise inventory files for each dining facility.

2.1.2 TISA-Warehouse Subsystem

The primary purpose of the TISA-W subsystem is to introduce automation to the warehouse work area. The TISA-W subsystem will simplify merchandise storage, assist in maintaining adequate merchandise inventory levels, provide an effective method of recording merchandise distribution to all customers, and assure merchandise received from the suppliers, DPSC, and DSO is accounted for properly. The TISA-W subsystem is composed of five functional areas that accomplish the automation of the TISA-W (Figure 2.1-4). These functional areas are:

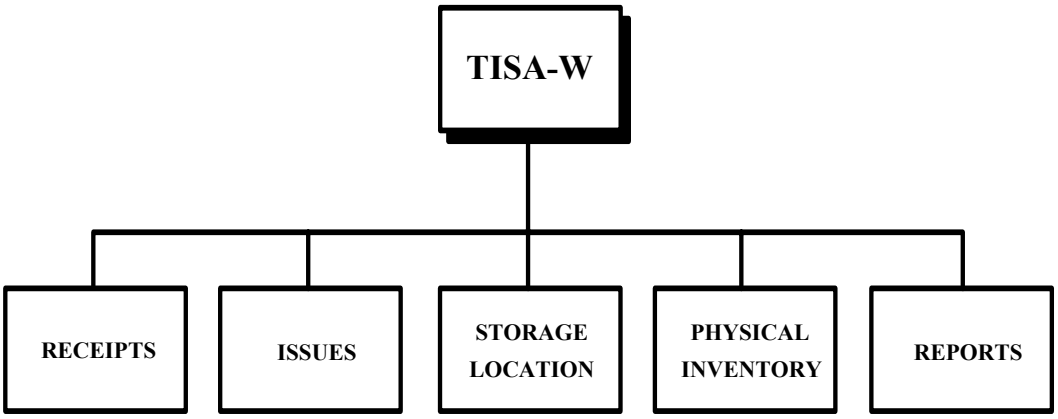


FIGURE 2.1-4 - TISA-W Subsystem Hierarchy

- Receipts.

  This function provides processes that permit the TISA-W clerk to account for merchandise received from suppliers and enter it into the AFMIS system.

- Issues.

  This function provides processes that permit the TISA-W clerk to determine if merchandise is available for distribution; make any necessary changes to quantities being distributed; and finalize the paperwork required to distribute merchandise to each customer.

- Storage Location.

  This function provides processes that permit the TISA-W clerk to determine where merchandise is located; add, change, or remove location sites; produce reports providing information on which location sites are available (primary and secondary sites); and what merchandise is perishable or semiperishable.

- Physical Inventory.

  This function provides processes that assist the inventory team with recording, entering, correcting errors, and comparison of physical counts.

- Reports.

  This function provides the TISA-W clerk with processes that produce reports containing information on how often deliveries are made to each dining facility; merchandise currently unavailable for distribution; and merchandise that has not been received from the suppliers (DPSC and DSO). Any report previously printed by the TISA-W subsystem can be reprinted without rerunning the process.

2.1.3 IFA Subsystem

The primary purpose of the IFA subsystem is to furnish pertinent information used to improve support, service, and control for each dining facility at an installation. The IFA subsystem consists of six functional areas that support the mission of each dining facility at an installation (Figure 2.1-5). These functional areas are:

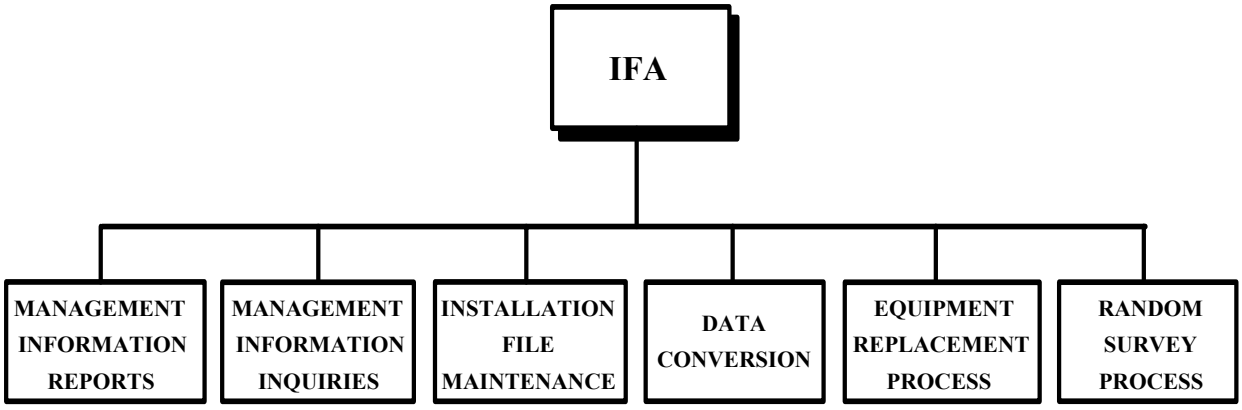


FIGURE 2.1-5 - IFA Subsystem Hierarchy

- Reports.

  This function provides processes that permit the IFA clerk to generate reports that capture information on the number of people dining at a facility; the monetary costs of each meal and total costs for each dining facility; financial status (monetary and percent); operational costs (monetary and percent); and an annual report on financial status for each dining facility.

- Inquiries.

  This function provides processes that permit the IFA clerk to query AFMIS database files for financial information, menu and recipe data, projected inventory levels, and visibility of specific merchandise items, when necessary.

- File Maintenance.

  This function provides processes that permit the IFA clerk to add, change, or remove information directly from selected AFMIS database files.

- Data Conversion.

  This function provides processes that permit the deployment team to establish the necessary database files when the AFMIS application system is installed at an installation.

- Equipment Replacement.

  This function provides processes that permit the IFA clerk to maintain detailed data on the equipment located at each dining facility, requests for replacement of old or inoperable equipment, schedules for replacement of equipment, and financial considerations for replacing equipment.

- Random Survey.

  This function provides processes that permit the IFA clerk to maintain dining facility contract files, dining facility schedule of closings, and print the random surveillance schedule for the current or next month.

2.1.4 DFO Subsystem

The primary purpose of the DFO subsystem is to generate recipes with the necessary information to produce each meal, provide time tables for meal preparation, produce orders for merchandise required to prepare each meal, and provide a standardized method of inventory control. The DFO subsystem is composed of seven functional areas that will aid in the management of each dining facility at an installation (Figure 2.1-6). These functional areas are:

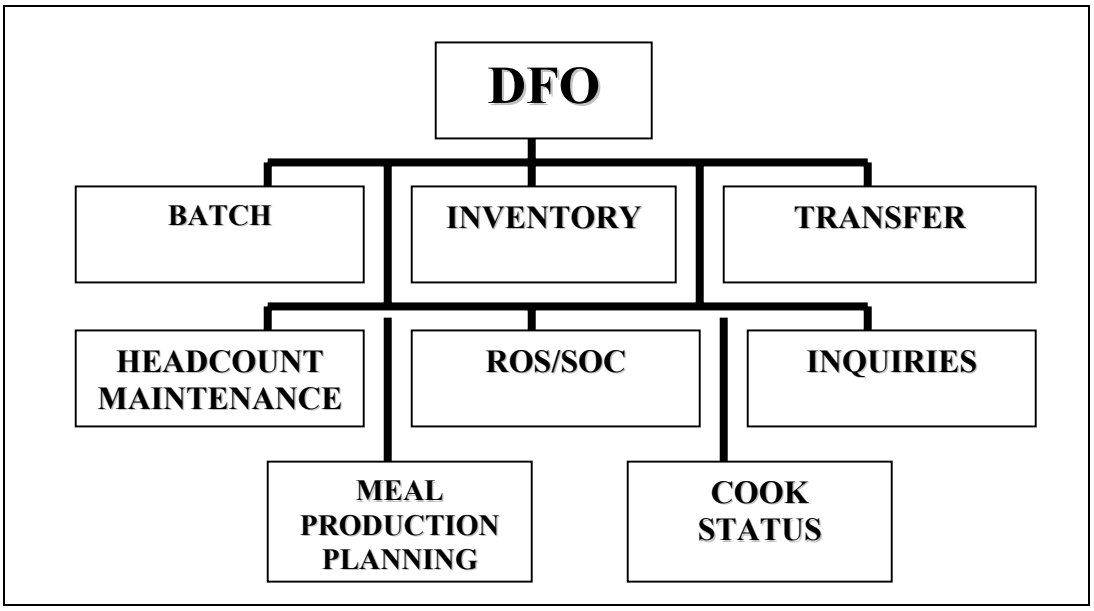


FIGURE 2.1-6 - DFO Subsystem Hierarchy

- Meal Production Planning.

  This function contains processes that provide the capability to review projected and actual dining facility account status; create, review, and adjust menus; create, update, print, and delete shopping lists; and produce production schedules and kitchen requisitions. In addition, it contains a processing checklist and the ability to generate reports.

- Inventory.

  This function provides processes that permit the DFO clerk to control merchandise inventory; perform reconciliations of inventory counts; maintain adequate supplies of merchandise; and provide reports (weekly and monthly) of merchandise inventories.

- Transfers.

  This function provides processes that permit the DFO clerk to create, update, delete, and print dining facility-to-dining facility transfers, turn-ins to TISA, dining facility-to-unit transfers and unit-to-dining facility transfers. In addition, the clerk can update the inventory balance on-hand for unit-to-dining facility and dining facility-to-unit transfers.

- Report of Survey/Statement of Charges (ROS/SOC).

  This function provides processes that permit the DFO clerk to create, update, delete, and print either a Report of Survey or a Statement of Charges that can be processed by TISA.

- Inquiries.

  This function provides processes that permit the DFO clerk to review/monitor DFO subsystem activities including: account status, menus, recipes, inventory, master item file, DF file, and headcount.

- Headcount Maintenance.

  This function provides processes that permit the DFO clerk to maintain selected DFO database files, inquire against these files to retrieve information, and produce reports containing information relating to money collected, current and previous financial data, and headcount.

- Batch.

  This function provides the processes that permit the DFO clerk to print the daily batch and price update reports, maintain the dining facility equipment replacement records, and print the equipment listing.

2.1.5 End-of-Day/End-of-Month Function

The EOD/EOM function completes interactive processing, produces required reports, and makes necessary periodic file adjustments. The EOD/EOM function consists of six processes (Figure 2.1-7). These processes are:

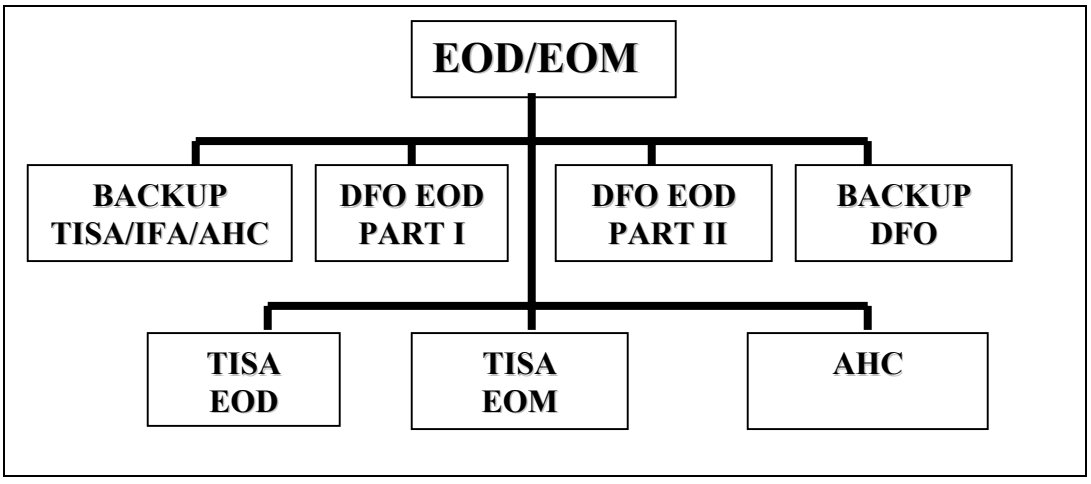


FIGURE 2.1-7 - End-of-Day/End-of-Month Function

- Back-up AHC/TISA/IFA database to disk.

  This process creates a disk back-up of the AHC/TISA/IFA database.

- DFO End-of-Day Part 1.

  This process sends transactions to TISA.

- Back-up DFO database to disk.

  This process creates a disk back-up of the DFO database.

- TISA End-of-Day.

  This process completes interactive TISA processing, posts transactions received from DFO to TISA/IFA files, sends transactions to DFO, and generates reports for management personnel.

- DFO End-of-Day Part 2.

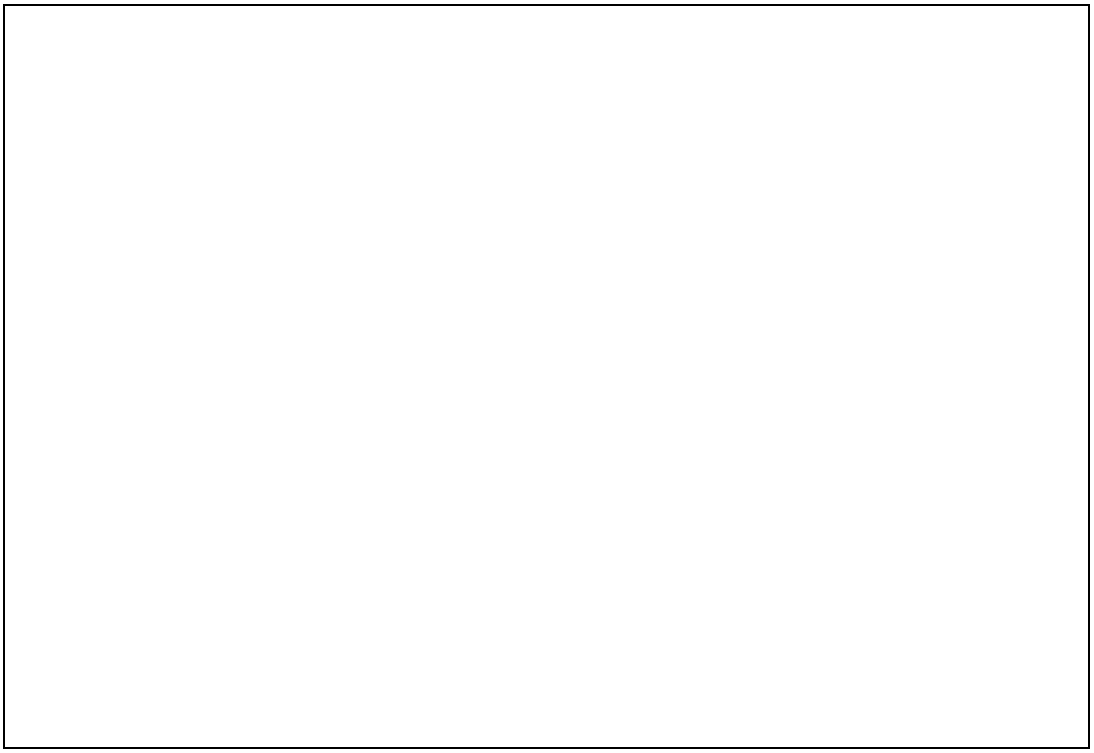
  This process posts transactions received from TISA to DFO files.

- TISA End-of-Month.

  This process performs special processing at the end of the working month.

- Automated Headcount (AHC).

2.1.6 Prime Vendor Subsystem



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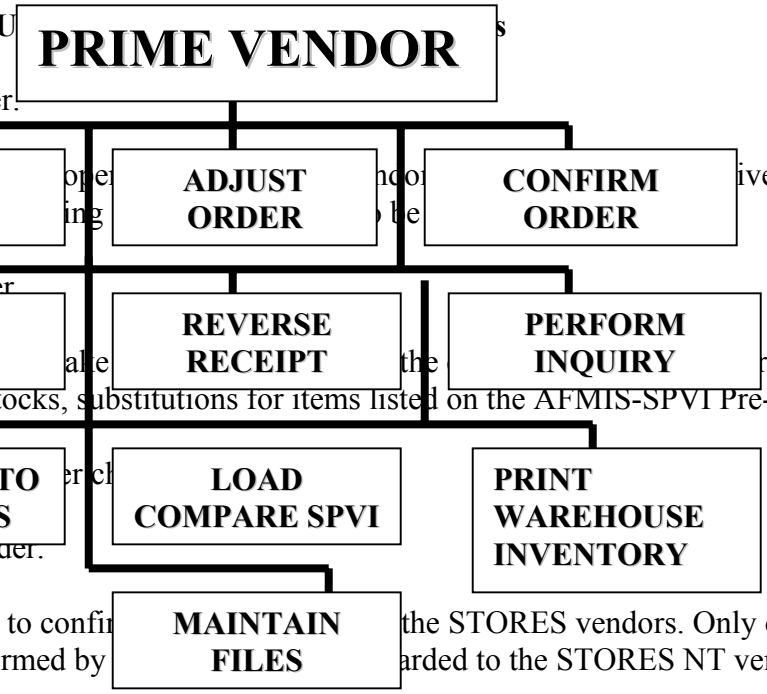


- Create Vendor Order.

  Th ivery
  da be

- Adjust Vendor Order.

  Th ed to
  reduce warehouse stocks, substitutions for items listed on the AFMIS-SPVI Pre-Order

  Ch

- Confirm Vendor Order.

  This process is used to confi the STORES vendors. Only orders that have been confirmed by arded to the STORES NT vendors.

- Process Customer Receipt.

  This process is used to receipt items delivered to a customer by STORES vendors. For these items, the receipts and issues are processed simultaneously. Financial and inventory postings are the same as under AFMIS; however, since the items are not part of the TISA inventory, the receipts and issues are not posted to the TISA VRGC, MIF BOH, or transaction register. If the order date and the RDD are within 6 days of each other, the price in effect on the order date is paid.

- Reverse Customer Receipt.

  This process is used to correct a STORES receipt entered incorrectly. Reversals cannot be made through the DFO module. This process updates AFMIS inventory and STARFIARS financial records. Also, a D6U type transaction with a DIC of REV is created during the Send PV Data To STARFIARS/SPVI process and passed to STORES for processing. Prime vendor receipts cannot be reversed until after they have been processed through the Send PV Data To STARFIARS/SPVI process

- Perform Inquiry.

  This process permits viewing and printing of Prime Vendor orders and receipts. The inquiries may be performed for orders, receipts, or both (orders and receipts) for a specified range of RDDs. The inquiries can be limited to a customer ID, document number, TIIN, or customer ID and TIIN. When the print option for an inquiry is selected, the same information that would have been displayed to the screen will be printed as the Prime Vendor Orders & Receipts Inquiry Report PCN: AJK-AL1

- Send PV Data to STARFIARS/SPVI.

  This process should be run each day data is to be sent to STORES NT. It MUST be run prior to the end of day. It can be ran as many time a day as needed but should not be run after files has been transferred to STORES. This process files that are appended each time the process is run. Should files have been transferred to STORES and the process needs to be run again the SA must move the AR files in the informix/tisa/pv directory before running the process to create a file with the same name but different data. Under no circumstance should this process be run after the end of day has been run. This process creates the ARXXX.ORD and ARXXX.REC for all receipts and confirmed orders to be transferred to STORES, and financial information to STANFINS

- Load/Compare SPVI Catalog.

  This process is used to load new catalogs from STORES to AFMIS to update MIF prices as well as to produce reports of items available from the vendor in comparison to the MIF. It also allows the user to produce a report that list items ordered but are not available from the STORES vendors. Such requirements must be issued from the TISA warehouse or a suitable substitute ordered from a vendor. This process can be run prior to running the Send Data to STARFIARS/SPVI. All SPVI catalog problems must be reported to the DSCP Account Manager for the contract.

- Print Warehouse Inventory Status Report.

  This function provides processes that permit the TISA-W clerk to determine where merchandise is located; add, change, or remove location sites; produce reports providing information on which location sites are available (primary and secondary sites); and what merchandise is perishable or semiperishable.

- Maintain Prime Vendor Files.

  This process is used to set parameters for the prime vendor subsystem. It allows the user to select the source codes for vendor items received, establish the delivery schedule for each vendor, and enter the financial values used on orders. These values can be changed as the need arises.

3. AFMIS HARDWARE

3.1 Hardware Overview

3.1.1 AFMIS Hardware

Each subsystem of AFMIS is designed to support a different operating entity (or group of entities) on a specific installation. In most cases, these entities are physically located in different buildings. Depending on where the server is located (in the TISA office, at the installation Directorate of Information Management (DOIM), or another location), none of these entities may be physically collocated with the central processing unit (CPU). Accordingly, the Server supports multiple remote access interfaces and remote printing capability at multiple remote locations.

The actual hardware required at each installation is directly dependent on the number of dining facilities supported by the food program at the installation, the number of "remote" locations to be supported, and their distance from the location of the server.

3.2 System Administration

The bulk of the hardware for AFMIS is located in the SA office. A COMPAQ Proliant 1600 Server. This one is configured with an internal DAT Tape Drive, 9GB Hard Drive, a Lexmark Laser Printer, and / or the high speed printer Mannesman Tally. A COMPAQ Proliant 800 Workstation is also located in the SA office.

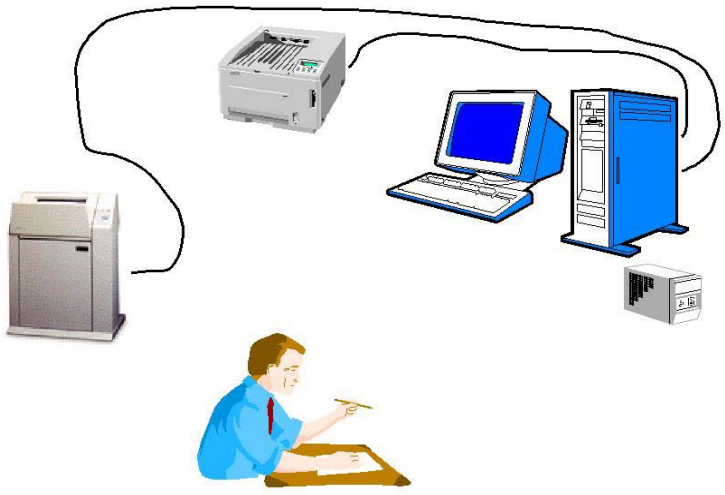


FIGURE 3.2-1 - SA Configuration

3.3 Basic Hardware

This section covers the basic hardware required to support the AFMIS subsystems.

3.3.1 TISA Subsystem

The number of assign personnel working at the TISA will determine the number of Workstations and printers needed by the TISA. The COMPAQ Proliant Server, Laser Printer, or high-speed printers, MT661 Mannesman Tally, remain with the TISA.

3.3.2 TISA-Warehouse Subsystem

At least one COMPAQ Proliant 800 Workstation and a Lexmark printer is located at each warehouse. The workstations, as well as the printer are connected to the installation LAN infracture. When the warehouse does not have a LAN connection, they are connected by modems (Figure 3.3-1).

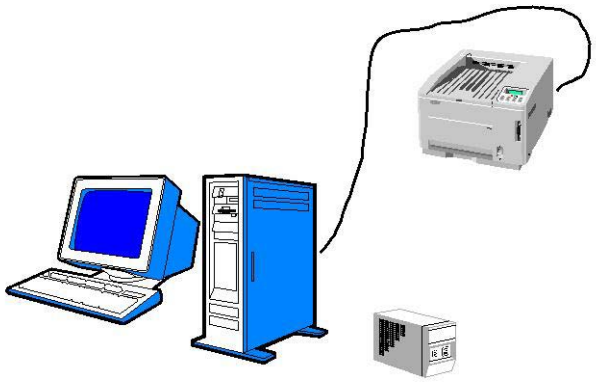


FIGURE 3.3-1 - TISA-W Configuration

3.3.3 IFA Subsystem

Each IFA office will receive at least one COMPAQ Proliant 800 Workstation and a Lexmark printer. The workstation as well as the printer, are connected to the installation LAN infracture. When the warehouse does not have a LAN connection, they are connected by modems (Figure 3.3-2).

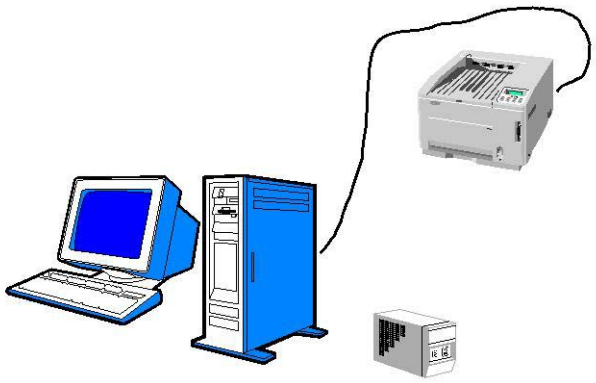


FIGURE 3.3-2 - IFA Connection

3.3.4 DFO Subsystem

One COMPAQ Proliant 800 Workstation and a Lexmark printer is located at each DFO. The workstations as well as the printer are connected to the installation LAN infracture. When the warehouse does not have a LAN connection, they are connected by modems (Figure 3.3-3).

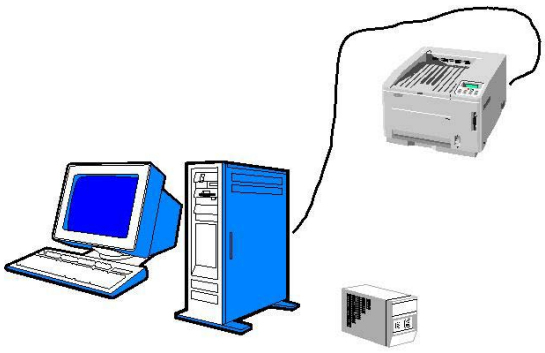


FIGURE 3.3-3 - DFO Connection

3.4 Hardware

This section consists of the hardware description, functions, and maintenance for the COMPAQ PROLIANT 1600 AND 800 systems.

3.4.1 Computer Configuration

Server Features

- 550 MHz Processor Unit
- 512-KB second level ECC cache standard
- 100-MHz GTL Bus Design
- 128-MB 100-MHz registered ECC SDRAM memory standard, expandable to 1 GB
- Two PCI and four shared PCI/ISA slots, (six total slots)
- Compaq 10/100 TX PCI UTP Controller (embedded) on the PCI local bus
- Integrated Dual Channel Wide-Ultra SCSI-3 Adapter
- Support for up to six 1-inch Wide Ultra2 SCSI hot plug drives
- 9.2-GB maximum internal storage (internal hot plug drive cage)
- Wide Ultra2 SCSI Drive Cage standard
- IO Ready
- Integrated Management Display (IMD) (optional)

- Easy-to-service chassis
- Pre-installed, high speed IDE CD ROM Drive
- Compaq Insight Manager, SmartStart, Integrated Remote Console (IRC) and Automatic Server Recovery-2 (ASR-2)
- Protected by Compaq Services, including a three-year, on-site limited warranty and extended Pre-Failure Warranty which covers Intel® Pentium® III processors, memory and disk drives.

Workstation Features

- 550 MHz Processor Unit
- 512-KB second level ECC cache standard
- 100-MHz GTL Bus Design
- 64 MB 100-MHz registered ECC SDRAM memory standard, expandable to 1 GB
- Two PCI and four shared PCI/ISA slots, (six total slots)
- Compaq 10/100 TX PCI UTP Controller (embedded) on the PCI local bus
- Integrated Dual Channel Wide-Ultra SCSI-3 Adapter
- Support for up to six 1-inch Wide Ultra2 SCSI hot plug drives
- 9.2-GB maximum internal storage (internal hot plug drive cage)
- Wide Ultra2 SCSI Drive Cage standard
- 1.44 Diskette Drive
- IDE CD-ROM
- Parellel Interface
- Serial Mouse
- IO Ready
- Integrated Management Display (IMD) (optional)
- Easy-to-service chassis
- Pre-installed, high speed IDE CD ROM Drive
- Compaq Insight Manager, SmartStart, Integrated Remote Console (IRC) and Automatic Server Recovery-2 (ASR-2)
- Protected by Compaq Services, including a three-year, on-site limited warranty and extended Pre-Failure Warranty which covers Intel Pentium III processors, memory and disk drives.

Note:

Due to the rapid changes in technology and availability of equipment the current AFMIS configuration is subject to change. Any subsequent hardware must be SCO compatible.

4. SCO UNIXWARE

4.1 SCO UNIXWARE Operating System

This section provides an overview of the SCO UNIXWAREWARE Operating System.

4.1.1 SCO UNIXWARE Overview

- Operating System.
    - SCO UNIXWARE consists of programs that controls the computer, acts as a link between the user and computer, and provides tools to accomplish user tasks. The operating system offers the following advantages:
        - A general purpose system for performing a wide variety of jobs or applications.
        - An interactive environment that allows direct communication with the computer and receive immediate responses to requests and messages.
        - A multi-user environment that allows user to share computer resources with other users without sacrificing productivity.
        - A multi-tasking environment that enables user to execute more than one program, simultaneously.
- Major Components. The four major components are:
    - kernel
    - file system
    - shell
    - SCO UNIXWARE commands
- How the SCO UNIXWARE System Operates.
    - Each circle (Figure 4.1-1) represents one of the main components of the SCO UNIXWARE, namely, the kernel, shell, and user programs or commands. The arrows show how the shell acts as a medium to allow communication with the kernel.

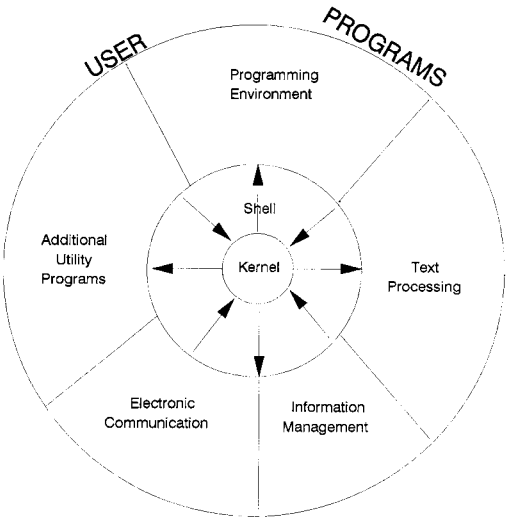


FIGURE 4.1-1 - SCO UNIXWARE System Components

4.1.2 The Kernel

The kernel (Figure 4.1-2) can be referred to as the nucleus of the operating system. The kernel controls access to the computer, schedules processes, allocates memory and disk storage, manages transmission of data between main storage and peripheral devices. The kernel performs three major tasks which are Process Management, Device Management, and File Management.

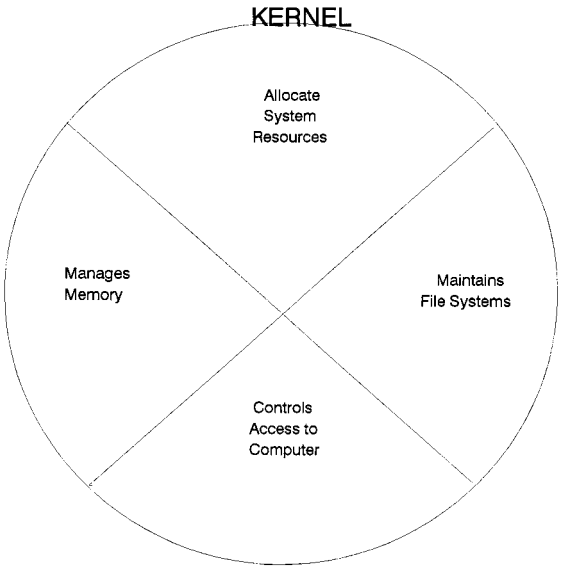


FIGURE 4.1-2 - Kernel

- Process Management. Starts processes; schedules processes; swaps processes to disk, allocates resources; such as, memory, and gives services as requested.

- Device Management. The most hardware dependent part of the SCO UNIXWARE kernel. It supervises movement of data between main memory and devices. For every piece of Hardware attached to the computer, there are applicable software modules.

- File Management. Stores files on disks and supports multiple file system types.

4.1.3 SCO UNIXWARE File Structure

The SCO UNIXWARE file structure is similar to the organizational chart of a large company. This structure provides a logical method of organizing, retrieving, and managing information. The top of the structure is the root and is represented with a / character. The rest of the file system is made up of directories, ordinary files, and special files. The root directory contains a variety of system related directories, e.g., /informix, /usr, /tmp, /etc, and /dev. See Figure 4.1-3 for a view of a typical file system.

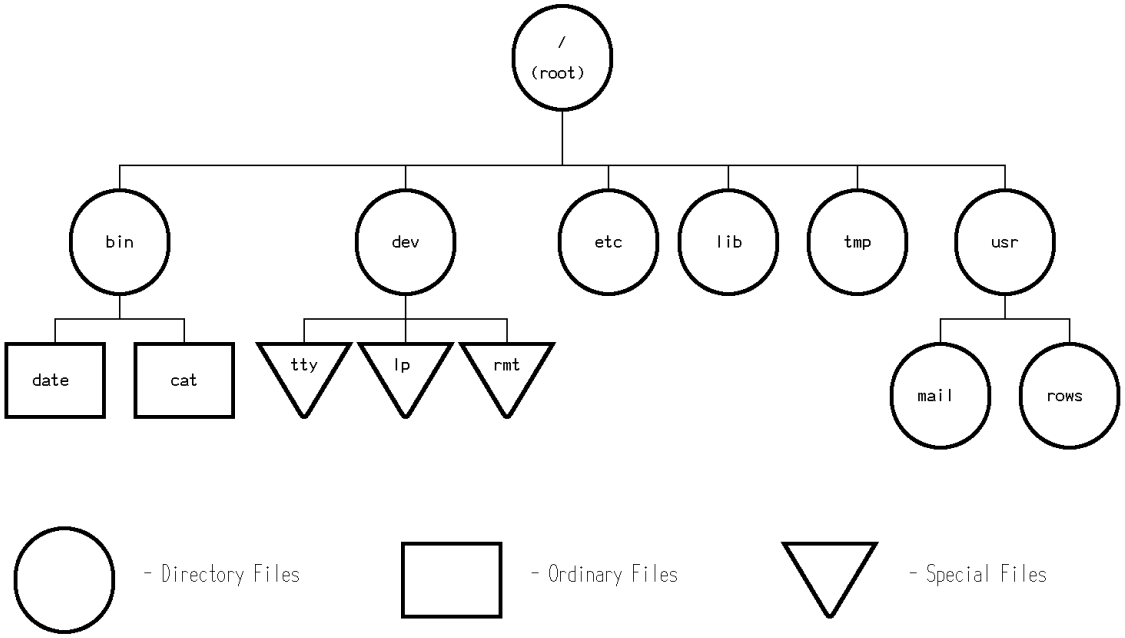


FIGURE 4.1-3 - Typical File System

4.1.4 SCO UNIXWARE File Types

The three types of files used with the operating system are directories, ordinary files, and special files.

- Ordinary Files. Ordinary files are a collection of characters treated as a unit by the system. These types of files contain text for letters or reports, code for programs, and commands to run programs. Users can manipulate a file by adding to it or deleting from it.

- Directories. Directories are a super file that contain a group of related files. A directory file stores the names of files it contains, plus information used to locate and access the files. Each user has a special directory called the home directory. In the AFMIS system, all user home directories are located in /work/acct/, i. e., /work/acct/ifa1.

- Special Files. Special files represent a physical work account device; such as, a terminal, disk drive, magnetic tape drive, or communication link.

The following is a description of the directories of a typical file system using the three file types:

/informix	contains database
/dev	contains special files that represent peripheral devices; such as, the console, line printer, user terminals, and disk drives
/etc	contains programs and data files for system administration
/lib	contains SCO utility programs
/tmp	contains temporary files that can be created by any user
/usr	contains other directories including mail, which contains files for storing newsworthy items

The directories and files created comprise the portion of the file system controlled by user. Other parts of the file system are provided and maintained by the operating system; such as, /bin, /dev, /etc, /lib, /tmp, and /usr, and, basically, have the same structure on all SCO UNIXWARE systems.

4.1.5 Moving Around the System

The directory that you are, presently, in is called the current directory of the working directory. To see the current directory or working directory, type pwd at the prompt. The cd command is used constantly to move around the various directories. For example, cd will take you to the home directory, whereas, cd /usr will take you to the usr directory. You can only move around through the file system in one of two places: current directory or the root directory. Follow these simple rules to move around in system:

- If you are starting with a slash (/), you are starting at the root directory; otherwise, you are starting in the current directory.

- The names used in the path are separated by slashes (/).

- While in /work/acct, the command: cd afmis will place user in the directory /work/acct/afmis. To move to a directory in relation to our current directory is called the relational path.

- Ascend the file system hierarchy by specifying in the path name. The examples in Figure 4.1-4 make this clearer.

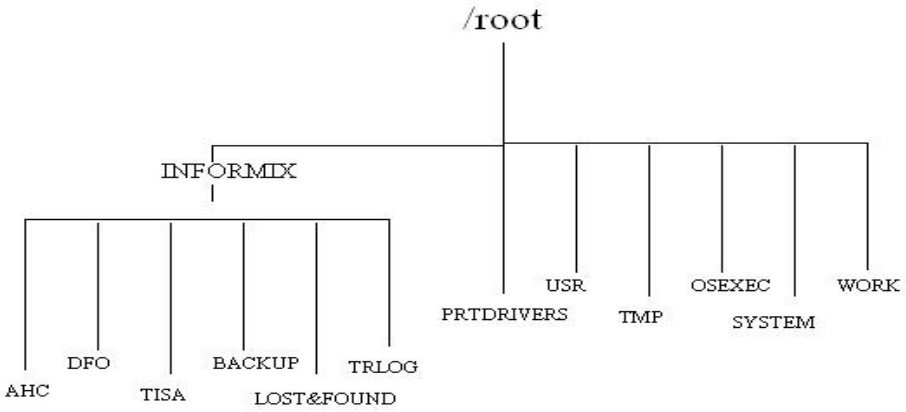


FIGURE 4.1-4 - UNIX File System Structure

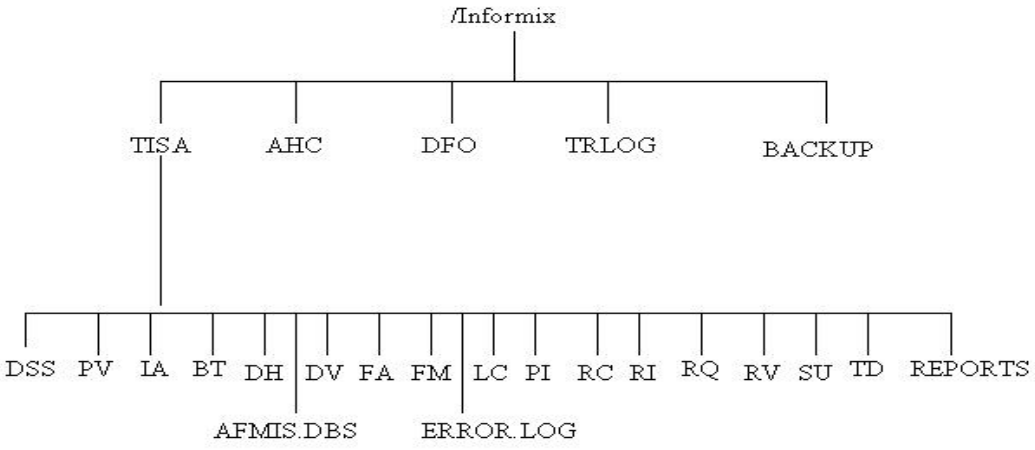


FIGURE 4.1-4a - TISA/IFA Subsystem Structure

- To change directories, the full path can be used. The command cd /work/acct/dfosa will move to the specified directory. This is called the full path.

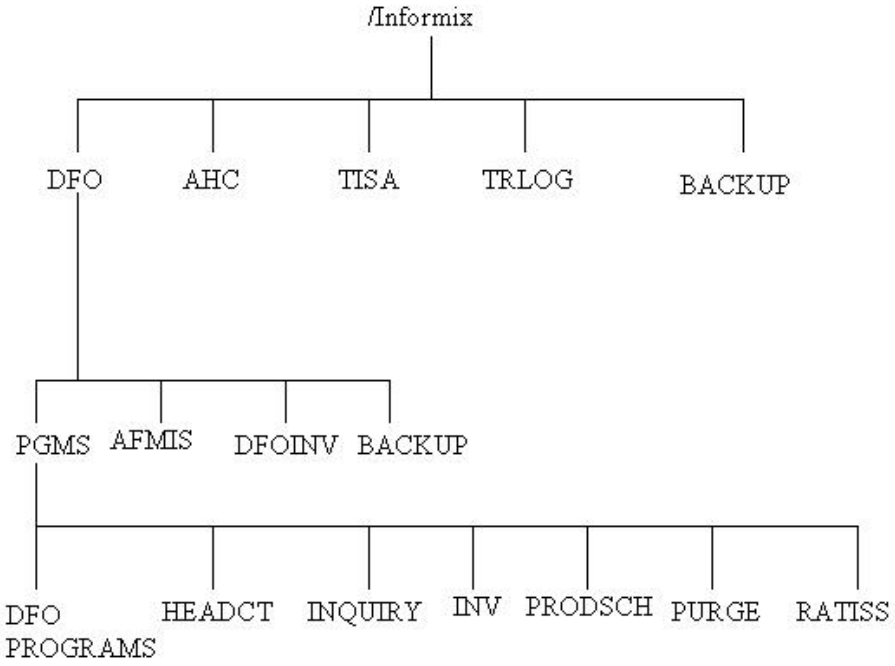


FIGURE 4.1-4b - DFO Subsystem Structure

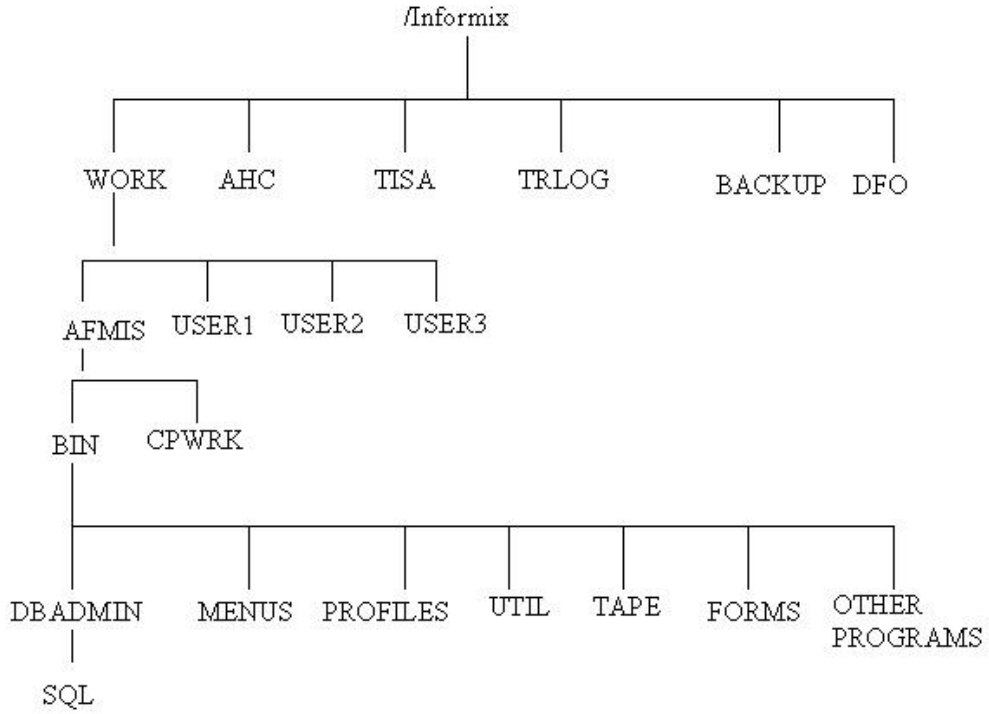


FIGURE 4.1-4c - AFMIS System Structure

- If logged-in as afmis, at the prompt, type pwd, the following is displayed: /work/acct/afmis.

- Move to /work/acct by typing cd **..** (**..** represents "back one directory").

- Go to /osexec by typing cd /osexec.

- Use Figures 4.1-4 to move around directories.

4.1.6 File Access Permissions

Each time a file is accessed by a user, the system checks to see if that user has the necessary permissions. Normally, the permissions are set so you can have free access to your files, and very limited or no access to operating system files. In the UNIX file system, these three operations are performed on a file, read, write, and execute. Each file is owned by a particular user and also associated with a particular group. For example, if you type ls -1, user may see the following:

PERMISSIONS	OWNER	GROUP	SIZE	DATE CREATED	FILE NAME
-rw-r--r--	1 U607	Users	5189	Jan 28 2001	sqls
-rw-rw-rw-	1 U607	Users	1813	Jan 19 2001	tape

The permissions on the files are on the left hand side, i. e., -rw-r--r--. The first position on the left is the type of file.

Code	Accessing
-	Ordinary file
d	Directory file
c	Character special file
b	Block special file
l	Symbolic link
p	Fifo (named pipe) file

The next nine positions are divided into groups of three. The first group belongs to the owner, the second to the group, and third to the other (Figure 4.1-5).

-	r w x	r w x	r w x	1	afmis
type of file	owner	group	other		owner ID

FIGURE 4.1-5 - Permissions

The UNIX system uses octal numbers (base 8) to represent the permissions on a file. For example, a single octal digit stores one set of read/write/execute permissions starting from the right. To change the permissions for the owner, group, and other, we need three octal digits. See Figure 4.1-6 for each digit permission.

DIGIT	READ	WRITE	EXECUTE
0	no	no	no
1	no	no	yes
2	no	yes	no
3	no	yes	yes
4	yes	no	no
5	yes	no	yes
6	yes	yes	no
7	yes	yes	yes

FIGURE 4.1-6 - Digit Permissions

file permissions	r w x	r w x	r w x
octal representation	4 2 1	4 2 1	4 2 1
file permission	7	7	7

r - x r w - -- x

4 - 1 42 - -- 1

5 6 1

4.1.7 Changing File Permissions

The owner of a file can change the permissions by using the chmod (change mode) command. The group can also be changed by chgrp (change group), and the owner can be changed by the chown (change owner) commands, respectively. The super user (root) can change the permissions on any file in the system. The following examples will further explain the use of these commands:

```
afmis> ls   -l test
-rw-rw-rw-          1       afmis   users   1269    Jan  24          11:00      test
```

Change permission to make file executable by owner.

```
afmis> chmod 766 test

afmis> ls -l test
-rwxrw-rw-      1    afmis   users   1269   Jan  24        11:00    test
```

Make file test inaccessible to members of the group and others.

```
afmis> chmod 600 test

afmis> ls -l test
-rw------      1    afmis   users   1269   Jan  24        11:00    test
```

Make file test readable and writeable to all.

```
afmis> chmod 666 test

afmis> ls -l test
-rw-rw-rw-      1    afmis   users   1269   Jan  24        11:00    test
```

To change the group on a file, make sure the group you are changing to is in /etc/group. Change group to informix on file test.

```
afmis> ls -l test
-rw-rw-rw-      1    afmis   users   1269   Jan  24        11:00    test

afmis> chgrp informix test

afmis> ls -l test
-rw-rw-rw-      1    afmis   informix   1269   Jan  24        11:00    test
```

Change the owner to another login ID on file test.

```
afmis> chown stu1 test

afmis> ls -l test
-rw-rw-rw-      1    stu1    informix   1269   Jan  24        11:00    test
```

4.1.8 Creating a File System

After the disk is partitioned or sliced, a file system can be created. To create a file system, use the mkfs command with its necessary options or use sysadm make. This will cause existing data on that portion of the disk to be cleared. It creates a skeleton directory structure including a special directory called lost and found. When this new file system is finished, it is ready to be mounted. To make this file system:

- login as root
- mkfs -F s5 /dev/dsk/c?t?d0sa /tisa

4.1.9 Mounting and Unmounting a File System

A file system is not accessible for use until it is mounted so the kernel is aware of its existence. In order to determine which file systems are mounted, use the df (disk file) command with the -k option. This listing shows all file systems mounted on the system. To mount or unmount a file system, use the sysadm utility.

4.1.10 Monitoring and Checking File Systems

Constant monitoring of the file system reduces the problem of running out of disk space. The following commands help determine if there are disk problems:

- The du (disk usage) summarizes disk usage and returns the number of blocks contained in all files and directories.
- The df (disk space) command reports the number of free disk blocks.

The SA can use the dfspace script located in /work/acct/afmis/bin to produce a formatted report (Figure 4.1-7). In order to check and repair the file system, the fsck (file system consistency check) should be executed. The fsck command should run on unmounted file systems since it goes through several phases of checking (Figure 4.1-7).

```
/          47.35% remaining:   30416 blocks   (31145984 bytes)
/proc      0.00% remaining:    0 blocks       (0 bytes)
/dev/fd    0.00% remaining:    0 blocks       (0 bytes)
/usr       54.59% remaining:   294250 blocks  (301312000 bytes)
/trlog     93.26% remaining:   185468 blocks  (189919232 bytes)
/tisa      28.30% remaining:   141478 blocks  (144873472 bytes)
/backup    45.90% remaining:   68846 blocks   (70498304 bytes)
/tmp       95.81% remaining:   95810 blocks   (98109440 bytes)
/work      81.67% remaining:   347021 blocks  (355214422 bytes)
```

FIGURE 4.1-7 - dfspace

4.1.11 The Shell

The UNIX system consists of various programs. The shell is considered to be one of the most important programs. The shell is an interactive program, plus an interpreter for executing commands. The shell is also referred to as the command interpreter. The command interpreter is used to execute commands. For example, if the who command is typed, the shell arranges for that program to be executed by the UNIX system. As a user of the UNIX system, much time will be used entering commands. The shell is very powerful when used for programming scripts (Figure 4.1-8). A special feature of the shell is that it enables a user to run a program/script in unattended mode. This allows a user to do other things on the terminal. The program that runs in attended mode is running in background. The shell is directed to run a program in background by placing an ampersand at the end of the command line. For instance, to run a time-consuming program named, search. Type search at the prompt proceeded by an ampersand (&).

```
afmis> search &
1388
afmis>
```

The number printed, after command is started, is the process ID number of the search process.

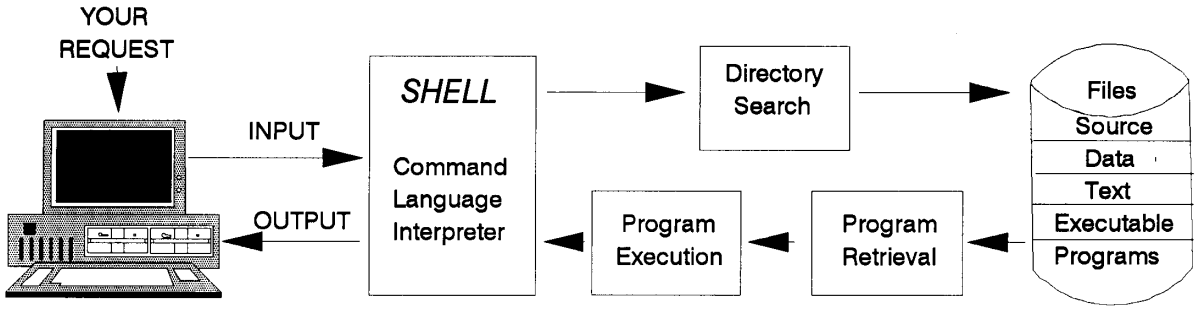


FIGURE 4.1-8 - UNIX Shell

4.1.12 UNIX Shell Commands

A command is one or more words separated by blanks or tabs. The first word of the command is the command name. Subsequent words/letters are the command arguments. The most simple command is a single word. For example, the ls command lists the files of your current directory.

The following pages of UNIX commands are for reference. For further use of these commands, refer to the online manual (man) or the hard copy manuals.

UNIX COMMAND-LINE STRUCTURE

command -options *arguments*

NOTE: Remember to use the man (manual) command to get the various options for commands.

UNIX COMMAND-LINE COMMANDS

banner message - banners message
cal - displays calendar
cancel print_id - cancels print jobs
cat *file* - displays contents of *file*
cd *dir* - changes working directory to *dir*
chgrp *group file* - changes *group* permission of *file*
chmod *mode file* - changes *mode* permissions of *file*
chown *uid file* - changes *file* ownership
compress *file* - compresses file for space conservation (uncompress to restore file & zcat to display a compressed file)
cp $file_1$ $file_2$ - copy $file_1$ to $file_2$
cp *file dir* - copy *file* into *dir*
cp *file* $HOME - copy *file* to HOME directory
date - display date and time
df - displays number of free disk blocks
du - displays disk usage in blocks
echo - echos literal/variable to screen
ed *file* - edit *file* (Use **vi** instead)
env - displays environmental variables (some are set in .profile)
exit - log-off system
file - lists file types
finger - gives long listing of users logged on system
ftp *host* - file transfer process. Connects to *host* for file transfer
fuser -k *user-id* - kills all processes associated with *user-id* specified
history - displays last 20 commands used
init state - places computer in specified state
kill -9 *PID* - kills process ID (PID) stated
lp *file* - prints contents of *file* to default printer (specified in .profile)
lpstat - lists printer status information
ls *dir* - lists files in *dir* or in current directory if dir is not specified
mail *user-id* - used to mail to another user
man *command* | *pg* - gives explanation on use of UNIX *command*
mkdir *dir* - create directory *dir*
mv $file_1$ $file_2$ - move $file_1$ to $file_2$ (simply rename it if both reference the same directory)
mv *file dir* - move file into directory *dir*
passwd *user-id* - sets new password for user
pg *file* - displays contents of *file* one screen at a time
ps - process status of user/system
pwd - displays current working directory path
pr *file* | lp - inserts page breaks in *file* and prints it to default printer
rm *file* - remove *file*
rmdir *dir* - remove empty directory *dir*
sort *file* - alphabetize *file*

su - used to switch user
telnet *host* - used to connect to *host* system
tty - displays port id that terminal is connected
uname - lists specifies of system name
wc *file* - counts the number of lines, words, and characters in *file*
who - displays users logged on
write *user-id* - places user in write session with specified *user*

SPECIAL CHARACTERS

. - (period- termed "dot") current directory

.. - (parent directory - termed "dot dot", i. e.) one level back
cd .. - Will change directories back one directory.

***** - (wild card) - examples are:

ls *.4ge - Lists all files with the .4ge extension.
rm b* - Removes all files, in current directory, that begin with letter b.
rm * - Removes all files in current directory (**Be Careful!**).
vi * - Edits all files in current directory (use :n to advance from one file to the next).

? - (positional wildcard) - examples are:

ls ajk??e - Lists all files that begin with ajk, with any two other characters, and ends with an **e**.

rm c?? - remove all files that begin with **c** and have two more characters afterwards.

> - (redirection arrow) Used to direct the output of a UNIX command, i. e.,

ls > tempfile - Does the ls command and puts the output in a file named, tempfile.
Will overwrite tempfile if it exists! We can now vi.tempfile.

>> - (append) Similar to the redirection arrow but instead, appends to the file specified rather than overwriting it, i. e.,

ls >> tempfile - Places the output of the ls at the end of whatever exists in tempfile.

| - (pipe) Used to string commands together for a more precise output, i. e.,

```
ps -ef | sort
cat /etc/passwd | pg
```

SOME ADVANCED COMMANDS

cut - Used in conjunction with other commands. Will cut fields and characters from output.

-c characters to cut
-f fields to cut (must be used with -d delimiter)
-d delimiter, what character separates fields, i. e., a space, a | , a :, etc.

who | cut -c1-5 Will cut characters 1 through 5 from the output of the who command.

who | cut -f1 -d" " - Will cut field 1 from the output of the who command. The -d states that the fields are separated by a space.

find - Locates files or directories. If you cannot recall where a file is located, use the find command.

```
cd /
find . -name daily -print
```

This command tells which directories contain the file, daily.

grep - Lists the occurrences of a string within files.

```
grep daily * | pg
```

This command locates the occurrence of the string, daily, in any file in the current dir.

PUTTING COMMANDS TOGETHER

Commands often need to be used with other commands to achieve the desired output. Commands can be "strung" together with the pipe (|) symbol or output can be redirected for future use or modification. The following demonstrates how these can be used:

ps -ef	-	command to list all processes executing on system
ps -ef | pg	-	command to list all processes executing on system; paged
ps -ef | sort | pg	-	all processes sorted and paged
ps -ef | grep -v root | sort | pg	-	all processes, except root processes, sorted and paged
ps -ef | grep -v root | sort > tmpfile	-	all processes, except root processes, sorted and placed in file
pr -d *file* | lp -dhsp1	-	paginates report (pr) double spaces (-d) file to print (*file*) pipes it (|) to lp (line printer) at destination (-d) printer name (hsp1)(high speed printer)

4.1.13 Partitioning and Formatting a Hard Disk Drive

Before you can write to or read from the hard disk, the disk must be formatted. The super user can use the "fmthard" command from single-user state to physically format a SCSI hard disk.

4.1.13.1 Formatting a Hard Disk

A portion of each hard disk stores information about that particular disk. The volume table of contents (VTOC) resides in that area, and shows how the partitions on the disk are allocated. This process must be run from the SCO ADMIN GUI . Only the AFMIS SA is responsible for this process.

4.1.13.2 Partitioning a Hard Disk Drive

Partitioning is a term used to describe the process of dividing the disk into smaller, more manageable segments. This process must be run from the SCO ADMIN GUI. Only the AFMIS SA is responsible for this process.

4.1.14 Software Installation

After installing the COMPAQ PROLIANT hardware and peripheral devices, it is time to install the software. The following is a step-by-step procedure for loading the SCO UNIXWARE and INFORMIX software. (See Appendix B1)

4.1.15 Logging-in the SCO System

- The logging-in process can be divided into two major areas:
  - Login prompt.
  - User logging-in the system.

4.1.15.1 Login Prompt

The SCO system goes through a number of steps and files before the login prompt is displayed on the terminal. The operating system is loaded into memory. The SCO system is booted by powering-up the computer or pressing the reset switch. These run states are also called run levels. See Figure 4.1-10 for run states and explanation of them. Several other processes are activated at this time. For example, the sac (system access controller) program is started.

Run States	Description
0	Power-Down Mode (You may turn off the machine without danger.)
1	Single User Mode
s or S	Single User Mode
2	Multi-User Mode
3	Remote File Sharing Mode (Not Used)
4	User-Defineable System Mode (Not Used)
5	Firmware Mode used for maintenance and diagnostics
6	Shutdown and reboot

FIGURE 4.1-10 - Run States

4.2 Using the SYSADM Graphical Interface Unit (GUI) Menus

4.2.1 Account Manager

The SCOadmin (system administration) windows are used for a number of administrative jobs. For example, adding and removing users from the system, adding and removing printers from the system, and a host of other tasks. To invoke these windows, you must be a root user.

After successfully login, the first screen (Figure 4.1-13) will appear.

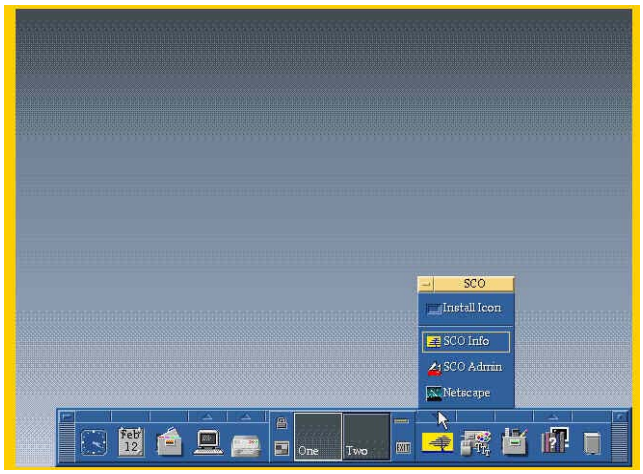


FIGURE 4.1-13 - GUI Main Window

You then click the up arrow above the yellow tree icon. Figure 4.1-14 will appear. You can select various options from this screen.

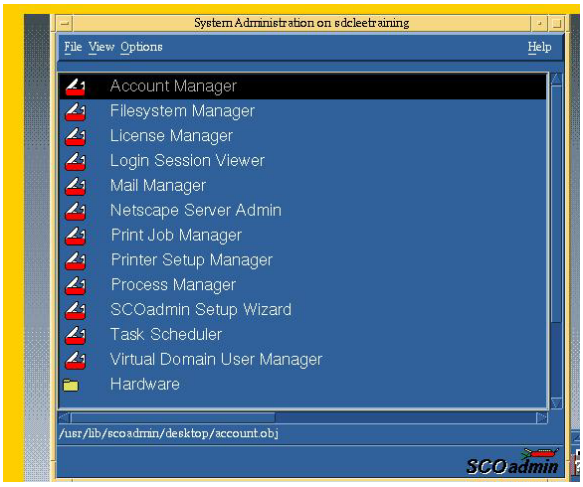


FIGURE 4.1-14 - SCOadmin GUI Window

4.2.1.1 Adding Users to System

One of the SA duties is to manage and keep track of user accounts in the system. You have the option to add, change, and delete users in the system. You can also change user properties; such as password and security.

Highlight and click the ACCOUNT MANAGER option. The following window will appear:

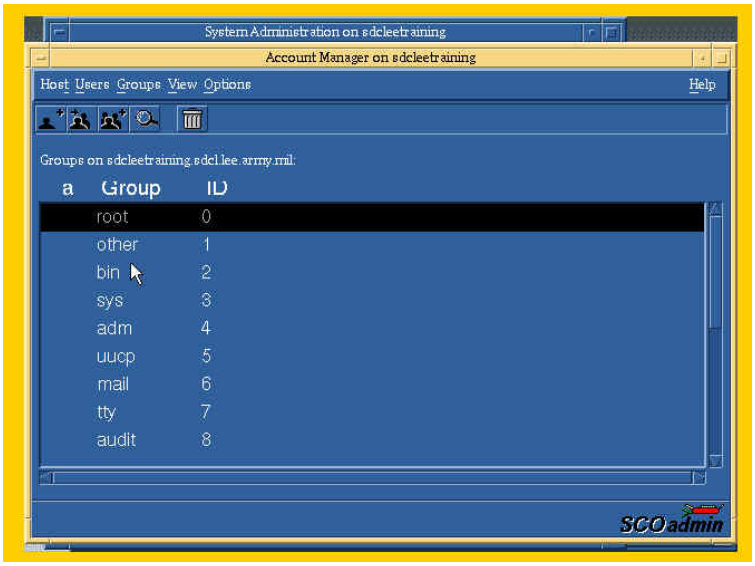


FIGURE 4.1-15 - Account Manager Window

To ADD a user, click the "Users" option in the toolbar. The following window will appear (Figure 4.1-16)

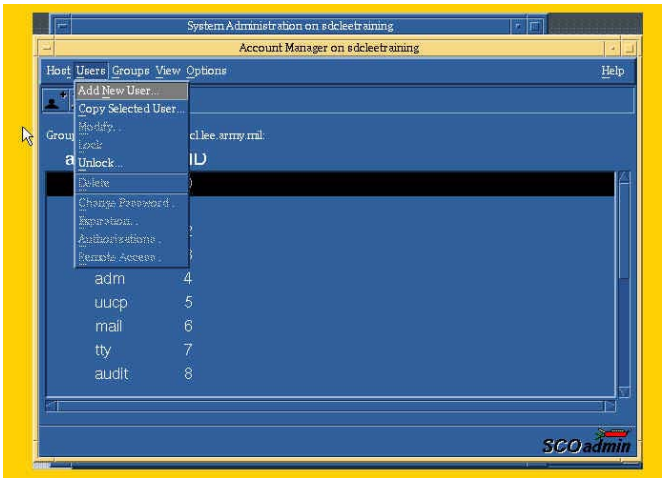


FIGURE 4.1-16 - Account Manager Window

From the dropdown list, double click the "Add New User" option. A new window will appear. See Figure 4.1-17.

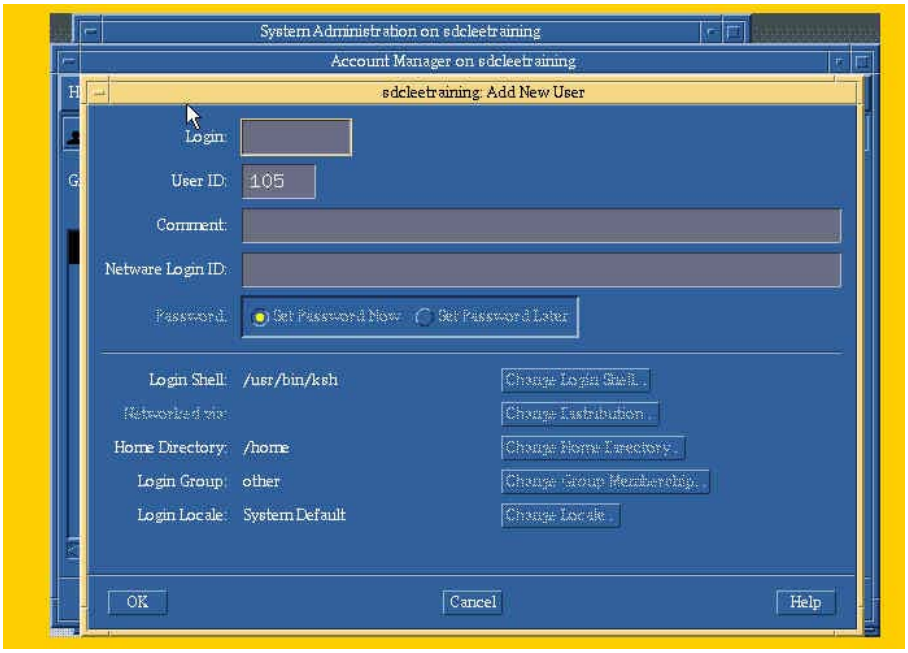


FIGURE 4.1-17 - Add New User Window

Login :	Choose a name that is not being used. The maximum length is eight characters, i. e., ifa1, last name, bldg#, etc.
User Id:	If you are using sysadm to add a user, the next available UID will be given by the system.
Comment:	This field is useful to identify the user by name, e. g., Joe Doe, phone ext. 0898.
Netware Login Id:	Must be blank.
Login Shell:	The type of shell the user will use has to be determined. In AFMIS, all users use the home shell, i. e., /bin/sh, except root and AFMIS which use the korn shell, i. e., /usr/bin/ksh.
Home Directory:	You have to assign a home directory for each user. Normally, the home directory for all users is in one file system. For example, in AFMIS, the home directory is /work/acct/userid.
Login Group:	If the user belongs to a group, it must be indicated here.
Login Locale:	Remains as a system default.

After entering all data in the window, click OK and you will be returned to the previous window.

See figure 4.1-18

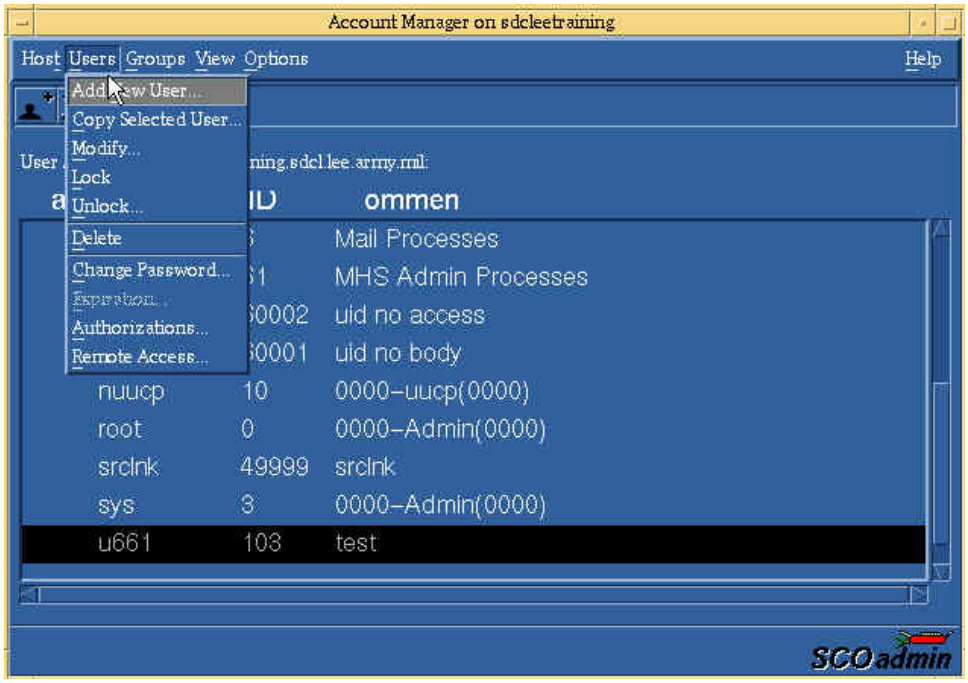


FIGURE 4.1-18 - Account Manager Window

4.2.1.2 Creating a copy of a user

To create a copy of another user, you must double click the "Copy Selected User" option. Figure 4.1-19 will then appear.

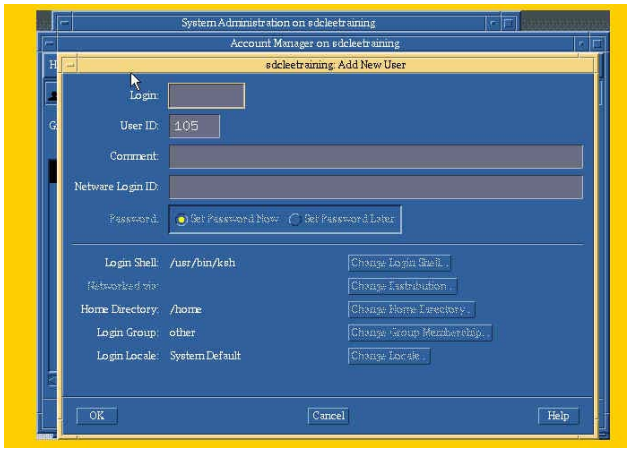


FIGURE 4.1-19 - Add New User Window

You must provide a Login name and the system will automatically assigned a User ID. The rest of the information, ie. Login Shell, Home Directory, etc will be same as the

user you just copied from.

Once you have finished with the window, click the OK button and you will return to the previous window. See Figure 4.1-18.

4.2.1.3 Modify Users In System

To modify the information for auser, you must click the "View" Option from the toolbar. You will then see (Figure 4.1-20 below.)

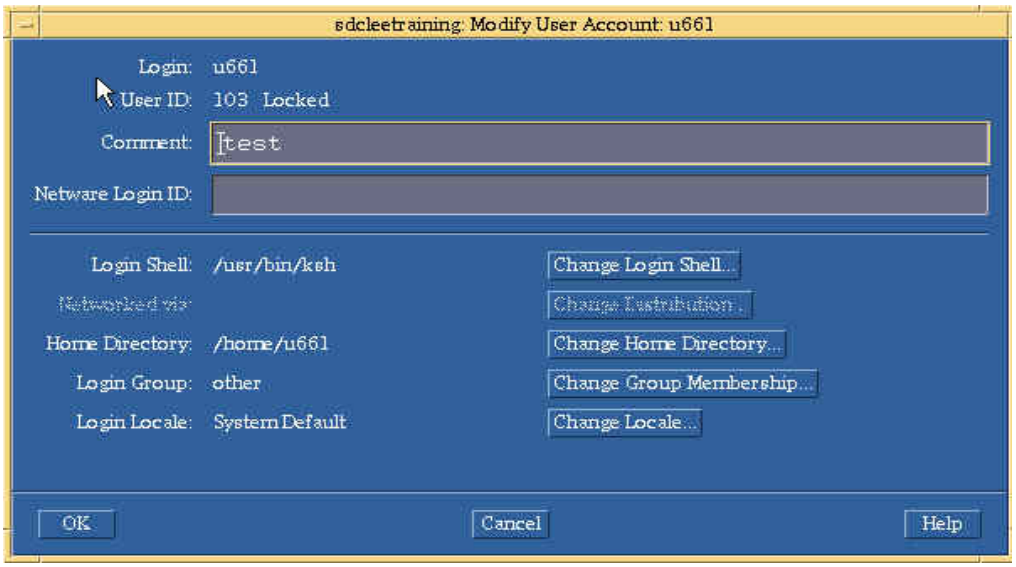


FIGURE 4.1-20 - Modify User Account Window

From this window you will be able to modify the following user properties:

Comment:
Netware Login Id: **Must be blank**
Login Shell:
Home Directory:
Login Group:
Login Locale:

After you have completed making changes to all the different options avalaible, click the "OK" button, and you will be returned to the previous window. See figure 4.1-18.

By clicking the Shell button, figure 4.1-21 will appear. Make entry changes as needed and click the OK button when done.

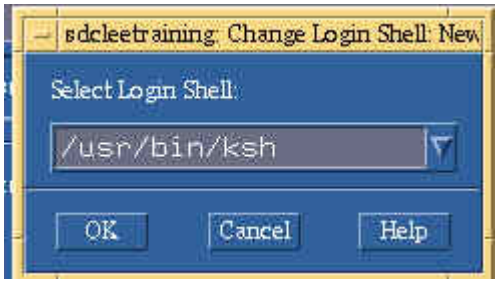


FIGURE 4.1-21 - Change Login Shell Window

Once you clicked the OK Button, Figure 4.1-20 will then appear.

To make changes to the Home directory, click the Directory button and figure 4.1-22 will appear.

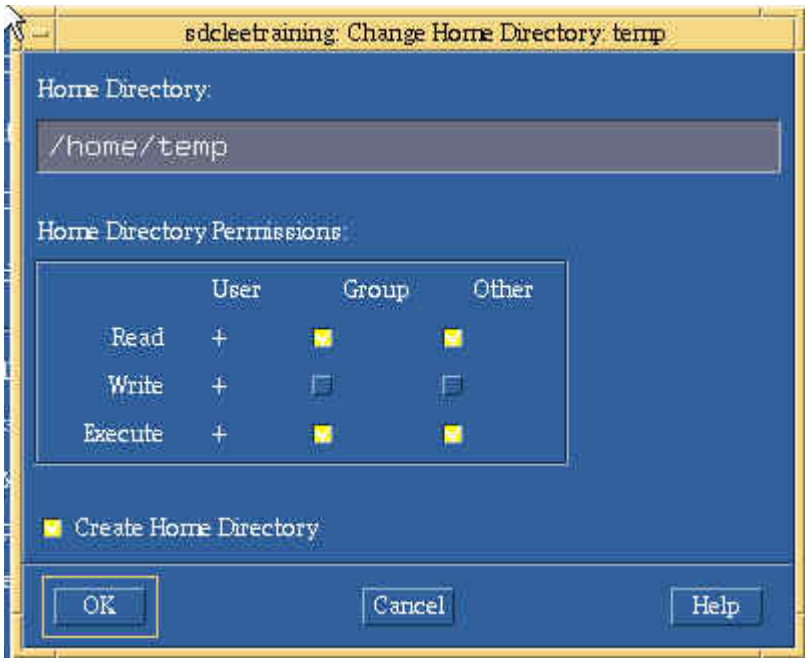


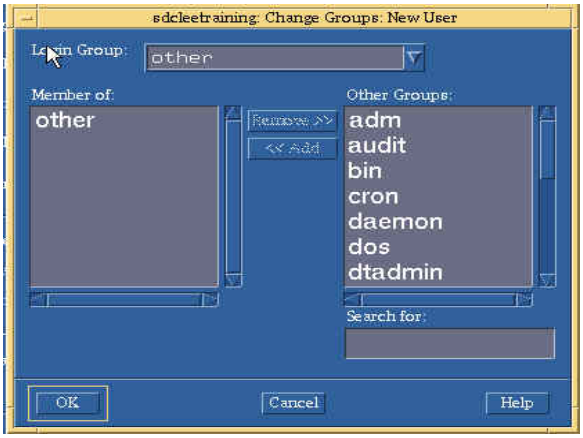
FIGURE 4.1-22 - Change Home directory Window

Make entry changes as needed, again when done, click the OK button and Figure 4.1-20 will appear.

To add and/or remove user from or to another group, click the Change Group Membership button from figure 4.1-20 and figure 4.1-23 below will appear.

FIGURE 4.1-23 - Change Groups Window

To add a user to a group, you must insure you have the proper group selected (to change group,



click the arrow in the Login Group tab, a dropdown list will be available). You them must double click the user from the "Other Groups" window. The user will be moved to the "Member of " group.

To remove a user from a group, you must do the opposite. You them must double click the user from the "Member of " group. The user will be moved back to the "Other Groups" window.

After you have added and removed all users and all necessary changes are done, click the OK button and Figure 4.1-20 will appear. Click again the OK button and you will be back 4.1-18.

4.2.1.4 Locking and Unlocking Users In System

This option is used by the SA to completely lock and unlock user(s) from accessing the AFMIS Server. To lock a user, you must first highlight a user and from the dropdown list option, click the Lock option. See Figure 4.1-18. You then will see Figure 4.1-24

FIGURE 4.1-24 - Warning Lock Window

Once you click the OK button, you have locked the user. The user will not be able to login to the AFMIS server from any of the workstations or the Server console.

To grant access to the user again, you must highlight the user and from the dropdown list option, click the Unlock option. See Figure 4.1-18. You then will see Figure 4.1-25 below.

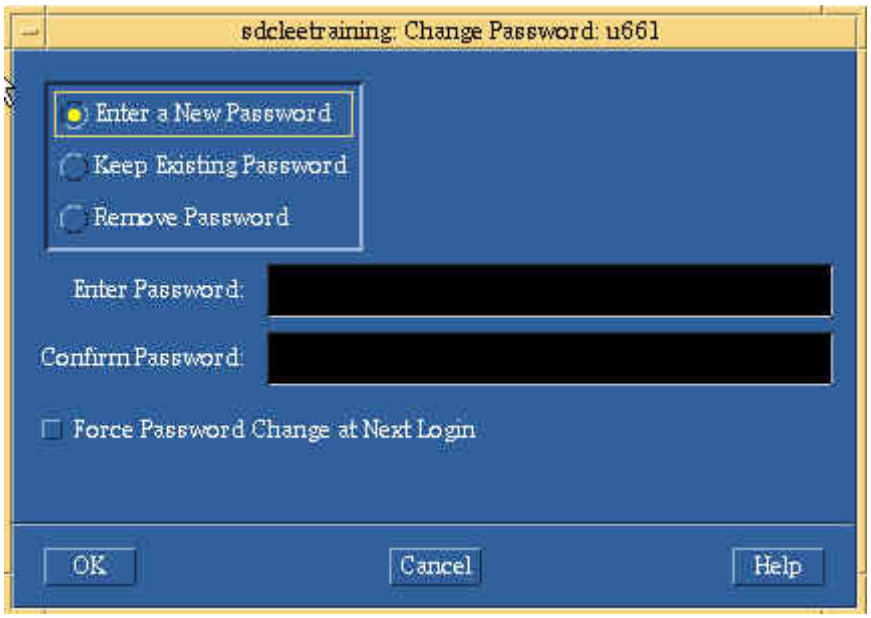


FIGURE 4.1-25 - Unlock User Window

To unlock the user, the AFMIS SA must either enter a new password or re-key the users previous
password and click the "OK" button when done. The AFMIS SA also has the option to assign a new password and force them to change the password when the user logs to the system the next time. Once you clicked the "OK" button figure 4.1-18 Account Manager Window will appear.

4.2.1.5 Delete Users In System

To delete a user, you must insure you must first hightlight the user as shown on Figure 4.1-18. Once the record is hightlighed, click the "Delete" option and Figure 4.1-26 will apppear.

FIGURE 4.1-26 - Delete User Window

This option is very important. Once you click the "OK" button the user will be removed permanently. Click again the OK button and you will be back to Figure 4.1-18.

4.2.1.6 Change Password

This option is used by the AFMIS SA to change user(s) password. To change the password, you must first highlight a user and from the dropdown list option, click the "Change Password" option. See Figure 4.1-18. Once you click this option, Figure 4.1-27 will appear.

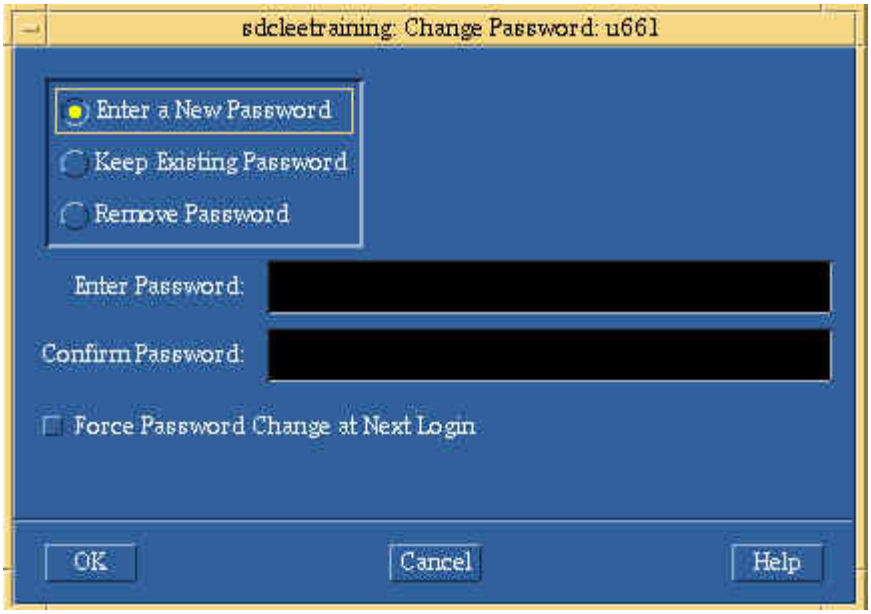


FIGURE 4.1-27 - Change Password Window

To change the user password, the AFMIS SA must either enter a new password or re-key the user previous password and click the "OK" button when done.

The AFMIS SA has also the option to assign a new password and force him to change the password when the user log to the system the next time. Once you clicked the "OK" button, you will see figure 4.1-18 Account Manager Window again.

4.2.2 Filesystem Manager

Use the Filesystem Manager to manage the filesystems on your system. A "filesystem" is a distinct division of the operating system, consisting of files, directories, and the information

needed to locate and access them.

Filesystems can reside on local hard disks, CD-ROMs, and floppy disks. You can also mount remote filesystems on your local system and make local filesystems available for other systems to mount. The system administrator creates the filesystems on the hard disk, then mounts and unmounts - attaches and detaches - the filesystems when needed. Similar to the way you access your floppy drive.

You can start this option by by clicking on the "filesystem Manager" option as shown in Figure 4.1-28.

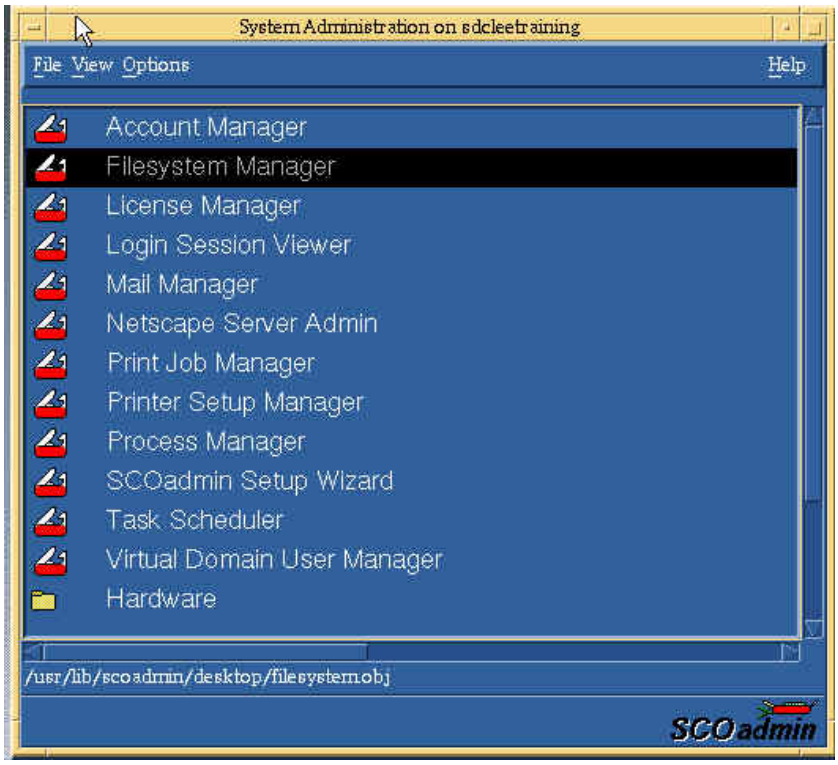


FIGURE 4.1-28 - Sysadm GUI Window

Once you click that option, you then will see the window shown on Figure 4.1-29.

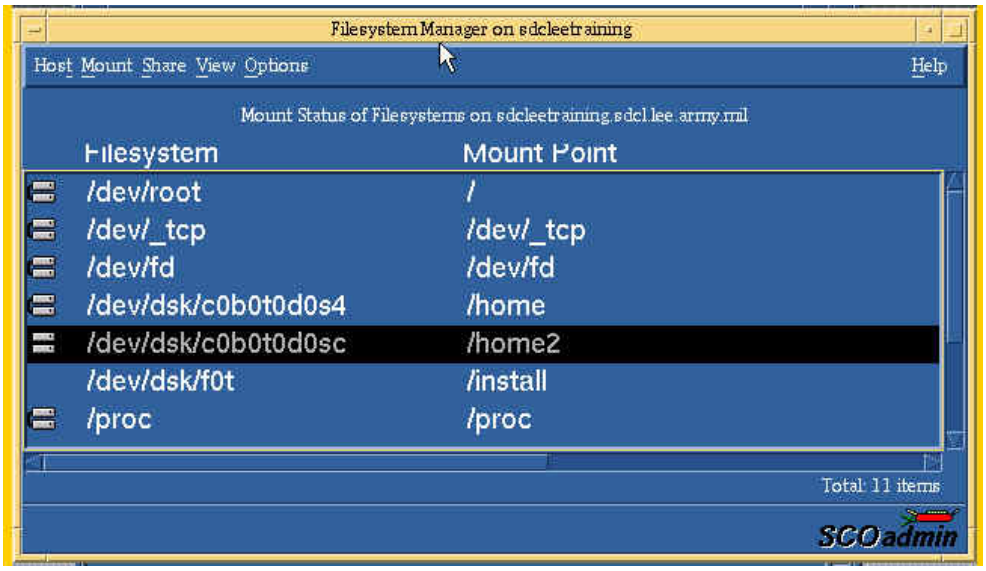


FIGURE 4.1-29 - Filesystem Manager Window

Once a filesystem has been created (on the CD-ROM, Floppy drive, or hard disk) or exported from a remote server, you must add the mount information to the system so that you can mount and use the filesystem.

To add a filesystem, you must click the option "Mount" shown above in figure 4.1-29. Figure 4.1-30 will then appear.

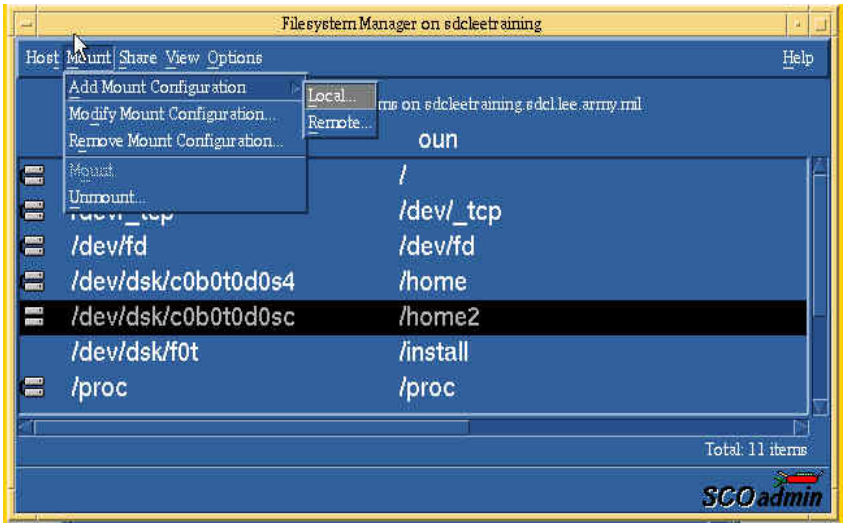


FIGURE 4.1-30 - Mount Window

When you click the option "Add Mount," it allows you to specify if the filesystem is going to be Local or Remote. When selecting the Local option, you will be using devices in your local system and when selecting the "Remote" option, you will select devices from a remote server. See Figure 4.1-30.

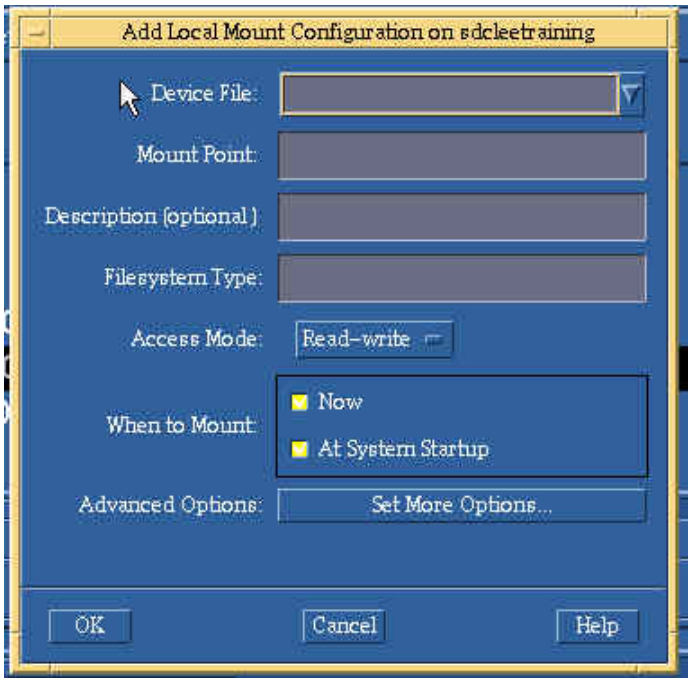


FIGURE 4.1-30.1 – Add Local Window

From this screen you can mount devices and provide the properties for each device.

Device File: By scrolling down the bar, you may select the device(s) you may wish to mount in the system.

Mount Point: Specifies the directory where you want to mount the filesystem.

Description: Description of the filesystems

Filesystem Type: Specifies the type of filesystem. Refer to page 166 on SCO Unixware Handbook.

Access Mode: Choose read-only or write-only.

When to mount: It determines when the mount will take place.

Advance Options: Change specific advance option for the filesystem.

Once you complete entering all the information, clicked the OK button. You will see Figure 4.1-29.

The Remote Option, will not be discussed in this handbook. For more information, refer to the SCO System Handbook Release 7.1.

To modify a mount, you must select and highlight a device as shown in figure 4.1-29. Then, from the toolbar, select mount, then Modify, and Figure 4.1-31 as seen below.

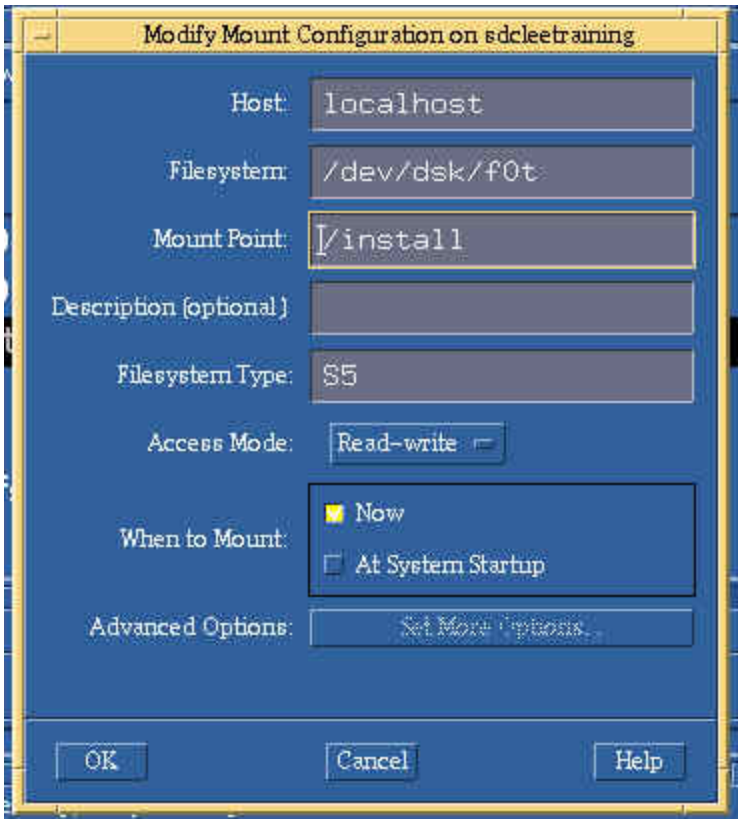


FIGURE 4.1-31 - Modify Mount Window

On this window, you can make all the required changes to the device you have selected. Once you are done with the changes, clicked the OK button and it will take you back to

Figure 4.1-30.

To remove a device, you must select and highlight a device as shown in figure 4.1-29. Then, from the toolbar, select mount, then Remove Mount, and Figure 4.1-32 as seen below.

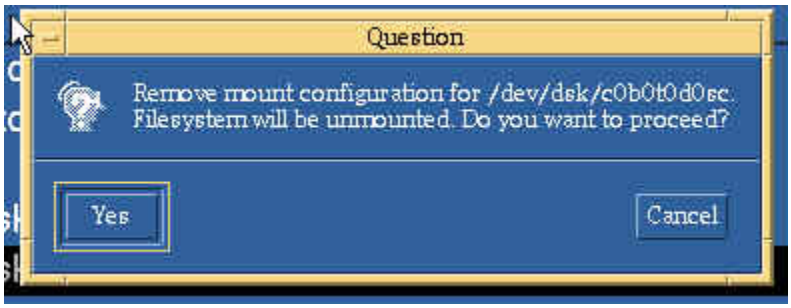


FIGURE 4.1-32 - Remove Question Window

You then are prompted if you are sure you wish to remove the device. If you are not sure clicked the Cancel button and you will return to the previous screen; otherwise click the "Yes" button and the device will be removed. Figure 4.1-29 will appear again.

To unmount a device, you must select and highlight a device as shown in figure 4.1-29. Then, from the toolbar, click the Mount option, then the Unmount button.

The Share option, will not be discussed on this handbook. For more information, refer to the SCO System Handbook Release 7.1.

The View option gives you the opportunity to only view the different filesystem configuration in the current system. The options you will probably use the most are the Mount option and the Disk Usage option.

When you have selected from Figure 4.1-29 the view tab and mount option, Figure 4.1-32.1 will appear and display the information as shown below.

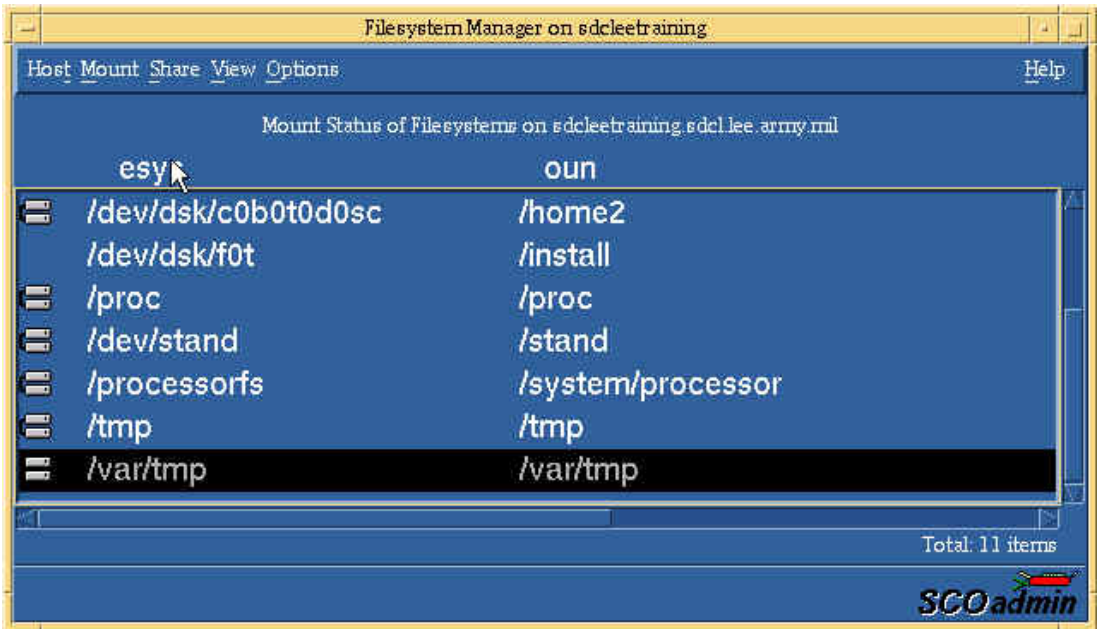


FIGURE 4.1-32.1 Mount Status Window

When you have selected from Figure 4.1-29 the View Tab and Disk Usage option, Figure 4.1-32.2 will appear and display the information as shown below.

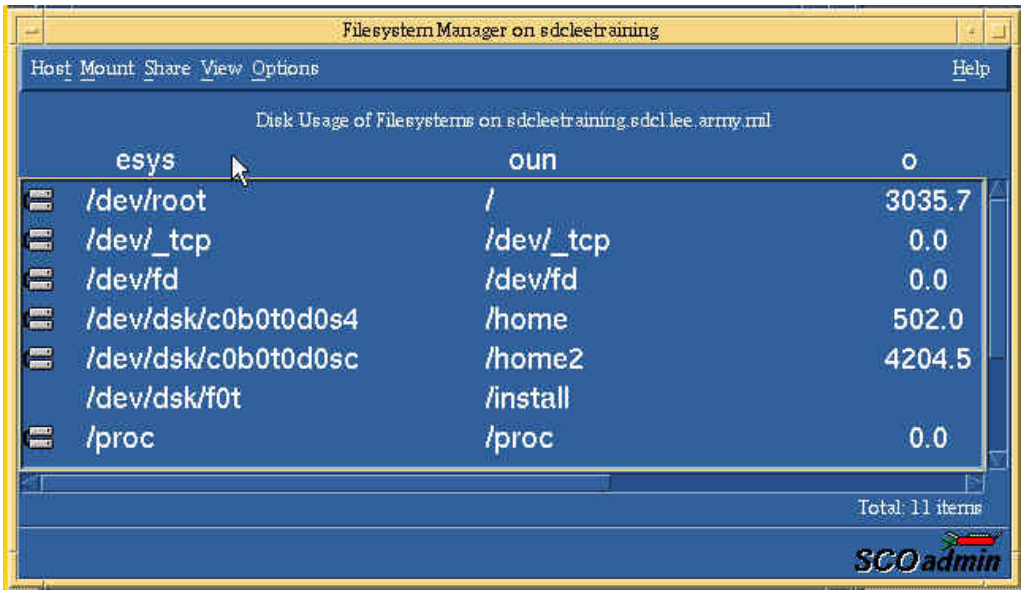


FIGURE 4.1-32.2 Disk Usage Window

The rest of the Tool Bar selections from the Filesystem Manager, will not be discussed in this handbook. For more information, refer to the SCO System Handbook Release 7.1.

4.2.3 License Manager

Once you have installed and licensed your SCO product you must register the product. To register the SCO UNIXWARE operating system is a two step process. First you enter the Licence information, then registration. From the System Administration window, you must click the License Manager button as shown in Figure 4.1-28. Once you clicked the buttton , Figure 4.1-33 as shown below will appear. The information presented in that window was entered prevously when the system was loaded initially.

This window will provide the opportunity to add more licences to the system. To do this you will need the Certificate of License and Authenticity which was provided to the system administrator via mail or handed by the deployment team.

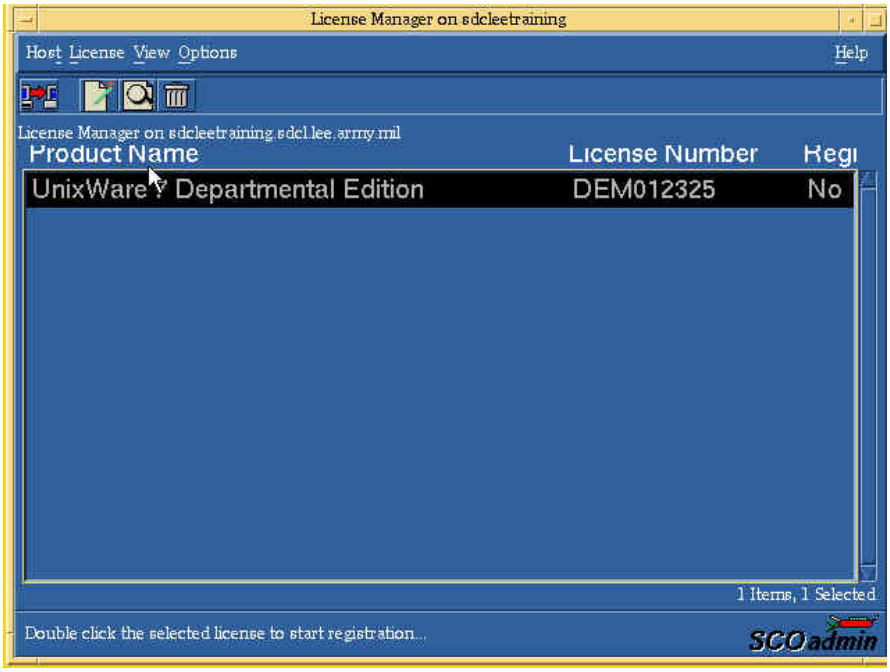


FIGURE 4.1-33 License Manager Window

To add another license, you must click the License button in the toolbar. You will then see Figure 4.1-34 as shown below.

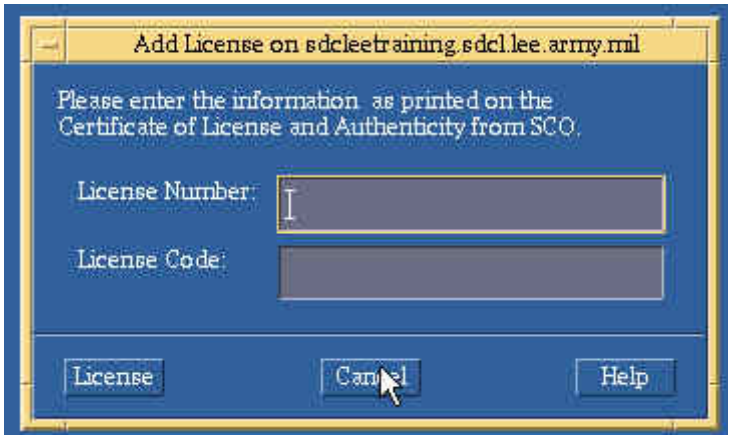


FIGURE 4.1-34 Add License Window

You must enter the License Number and Code. Again, this information is in the Certificate of License and Authenticity which was handed to the system administrator. Depending on the type of license being added, once you click the License button you will see Figure 4.1-33 or Figure 4.1-35.

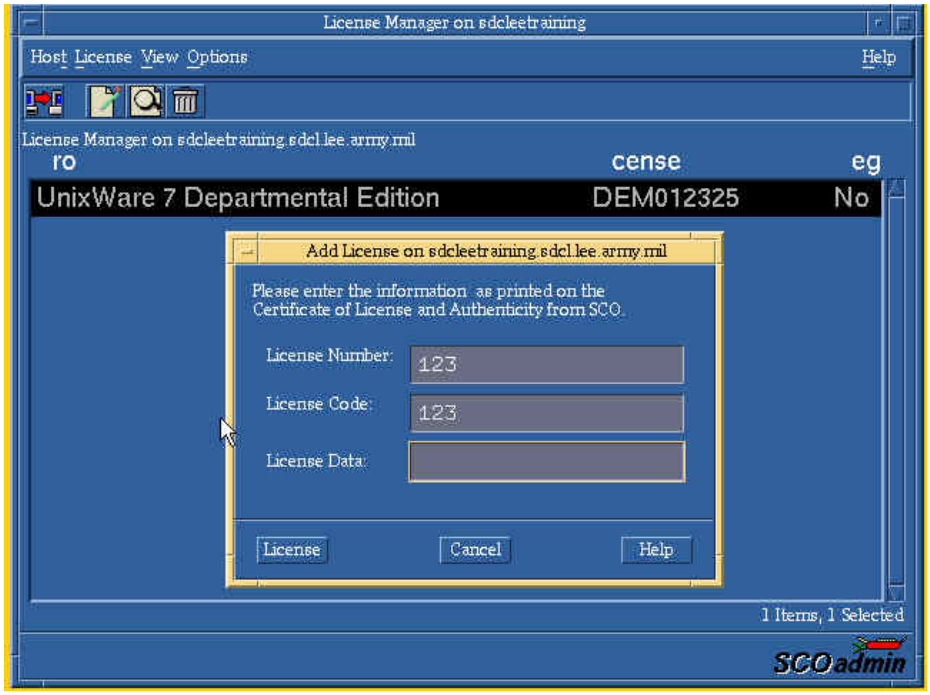


FIGURE 4.1-35 Add License Window

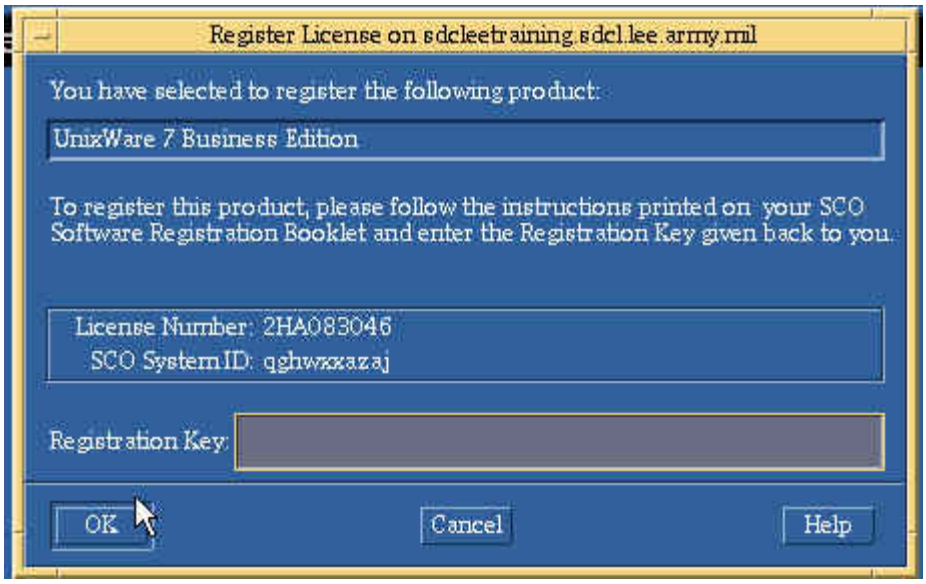


FIGURE 4.1-36 Register License Window

To obtain the Registration Key you must either access the online registration site by pointing your browser to www.sco.com or mail the Registration Card to SCO Registration Center.

Note: Not all SCO products require a registration key. However, it is recommended you still register them to receive updated information about the product.

Once you have completed the entries, click the "OK" button and you will return to Figure 4.1-33. You exit the window by clicking on the Host tab, then click exit to return.

4.2.4 Print Job Manager

Use the Print Job Manager to manage print jobs on all the printers available to the system. All users can delete, hold, and resume their own jobs. As the system administrator, you can also promote jobs to the top of the queue for a particular printer, transfer jobs to another printer and manipulate any of the jobs. To start the Print Job Manager, from the Sysadm GUI Window Figure 4.1-28, you must highlight and click the Print Job Manager option. Figure 4.1-37 will appear.

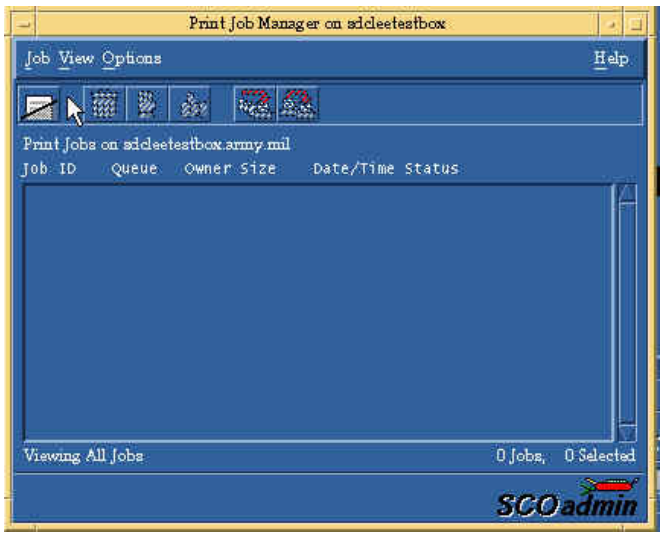


FIGURE 4.1-37 Print Job Manager Window

Use the Print Job Manager to Delete, Hold and Resume, Promote and Transfer print jobs.

To delete a job, refer to Figure 4.1-38.

To hold jobs, refer to Figure 4.1-39.

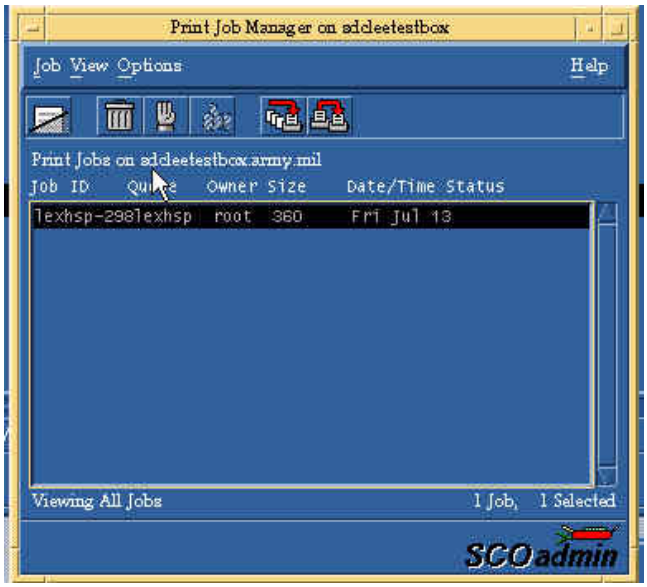
To resume a held print job, refer to Figure 4.1-40

To promote a job, refer to Figure 4.1-41 & Figure 4.1-42

To transfer a job, refer to Figure 4.1-43

To delete a job, highlight (select) the job or jobs to delete, from the "Job" dropdown list and select the "Delete" option (refer to Figure 4.1-38)

FIGURE 4.1-38 Print Job Manager Window



Once you selected the "Delete" option and click the "OK" button to confirm, you then will see Figure 4.1-39

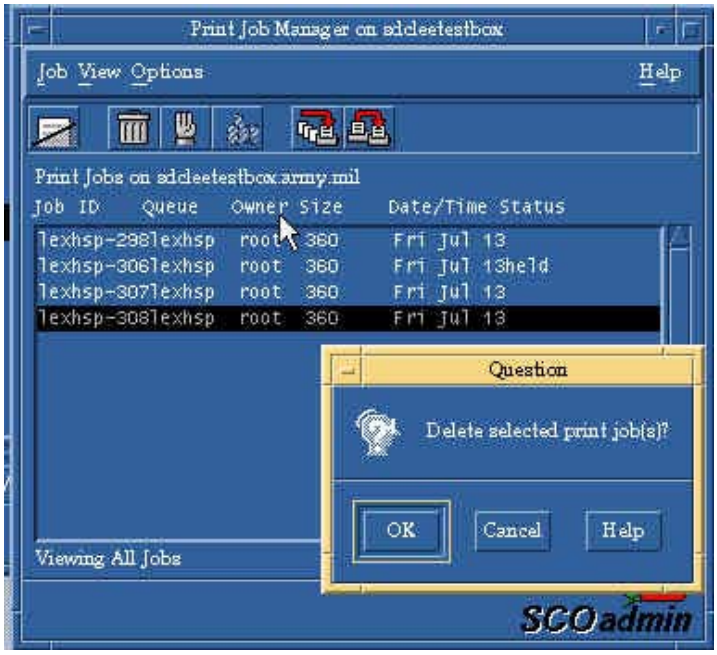


FIGURE 4.1-39 Print Job Manager Window

Once you have clicked the "OK" button you will return to Figure 4.1-37.

To Hold and Resume jobs, highlight (select) the job(s) you wish to put on hold, then from the Job Menu click the Hold option and click the "OK" button You then will see that the Status column will change to *held* to indicate that the job will not be printed. Refer to Figure 4.1-40.

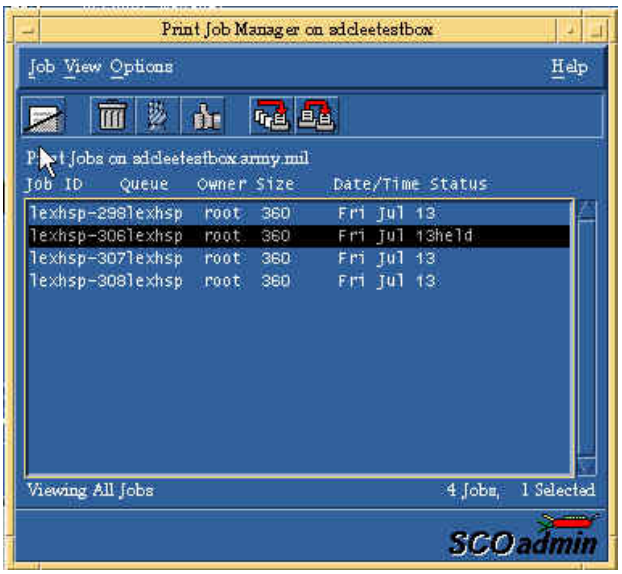


FIGURE 4.1-40 Print Job Manager Window

To Resume a held print job, select the job to resume, then select Resume form the Job Menu. The Status column will change to indicate the job will no longer be held. Job will start printing immediately.

To Promote a job means to change the priority of the printer queue. To do this, you must first be the system owner. You must be logged in as root or have authorization to "administer printer".

To promote a job, highlight (select) the job you wish to promote, then from the Job Menu click the Promote option. See figure 4.1-41.

Promoting a job does not mean the job will print first:

If there is a job currently printing, the job move to the next in line in the queue.

If other jobs have already been moved up, they will print first.

Figure 4.1-41 shows job "lexhsp-355" at the end of the screen. Once you highlight the job and click the promote option, job will move to the top of the queue (see Figure 4.1-42)

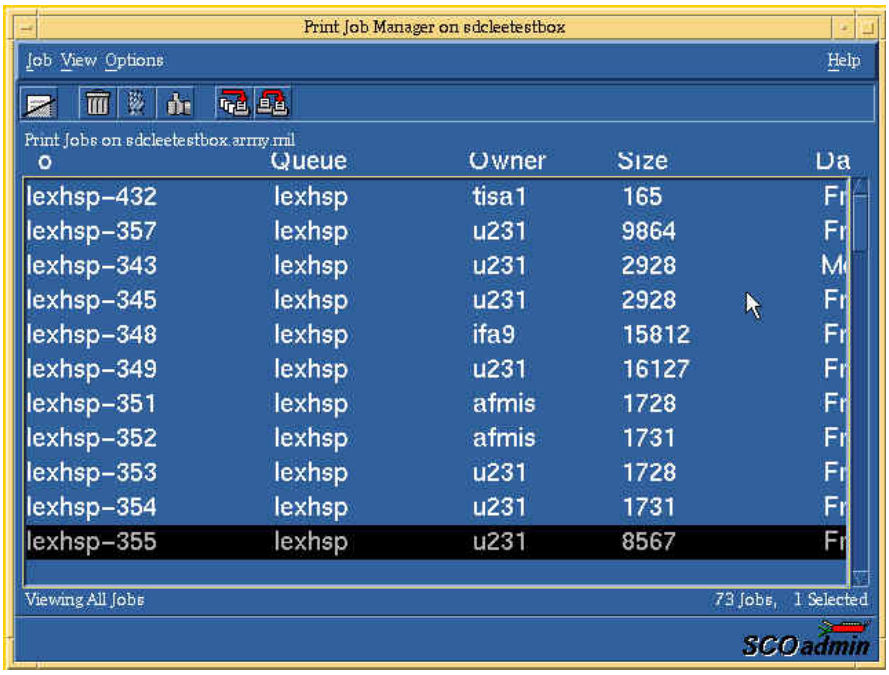


FIGURE 4.1-41 Print Job Manager Window

Review Figure 4.1-42 and notice how job "lexhsp-355" have move to the top of the queue.

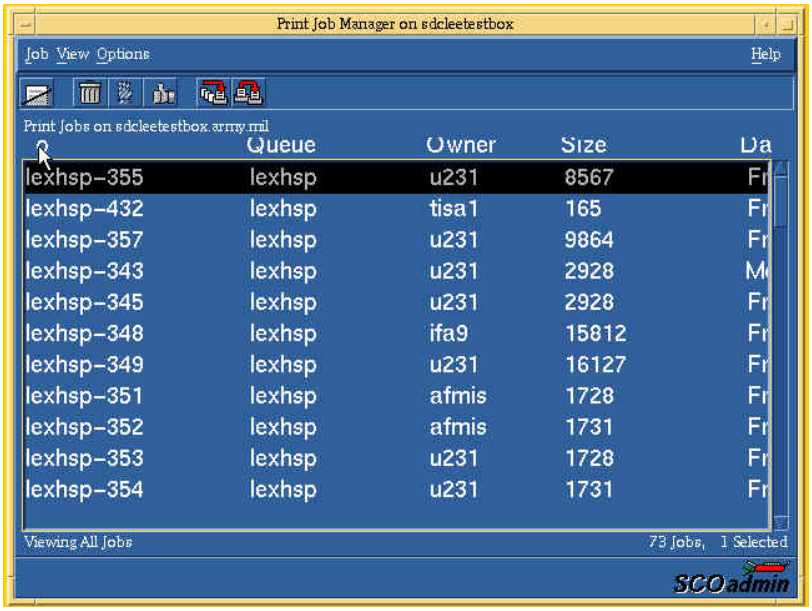


FIGURE 4.1-42 Print Job Manager Window

To transfer a job to another printer, highlight (select) the job(s) you wish to transfer to another printer. Then from the Job Menu click the "Transfer" option and Figure 4.1-43 will appear.

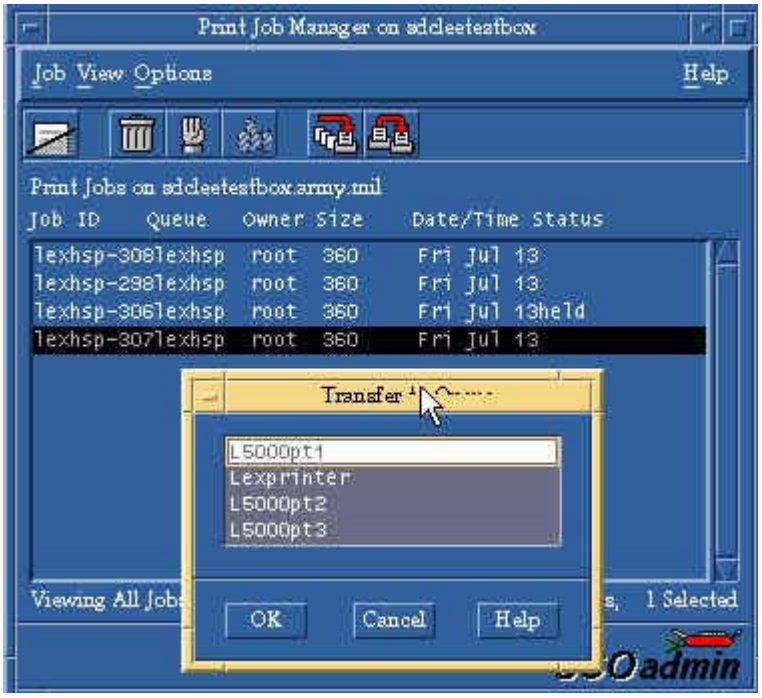


FIGURE 4.1-43 Print Job Manager Window

A window with all the printers available in your will system will be diplayed. You must then highlight the printer and click the "OK" button. The job will then be moved to the printer you have selected.

For more information on other options available under the Print Job Manager , you must refer to the SCO UnixWare 7 System Handbook.

4.2.5 Printer Setup Manager

From the SCO Admin window, highlight and click the "Printer Setup Manager".

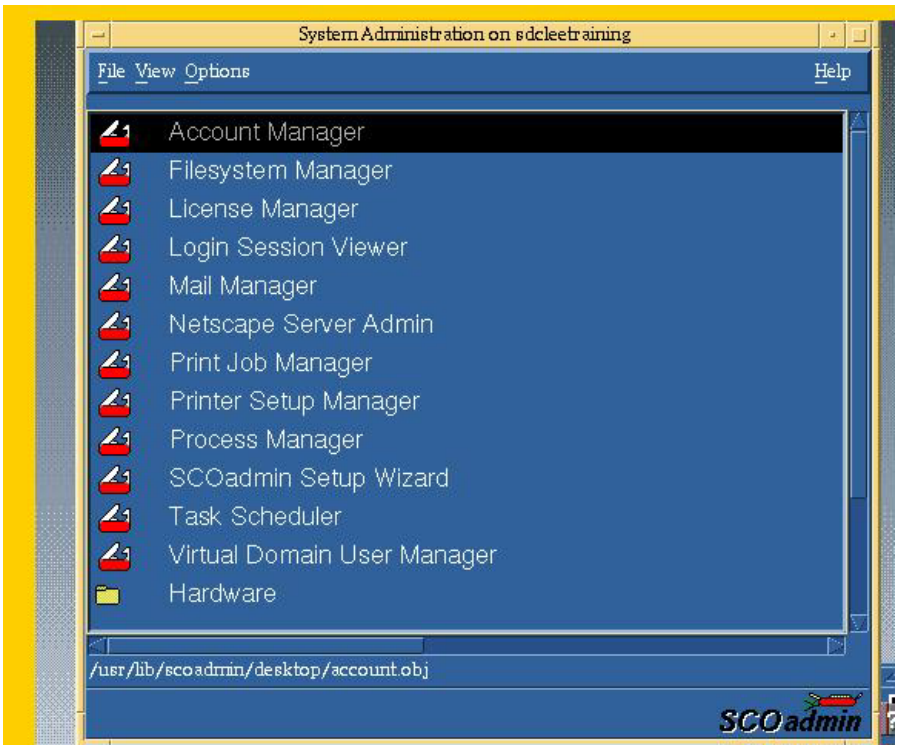


FIGURE 4.1-44 - SCOadmin GUI Window

Figure 4.1-45 will appear. From this screen you have the ability to:

- Add, modify, or copy local printers
- Add, modify, or copy remote printers
- Remove printers
- Enable / Disable printers
- Accept / Reject print requests

Note: Lexmark printers are not managed using this interface. They must be configured using a program called "Lexprt" and must be run from the root prompt.

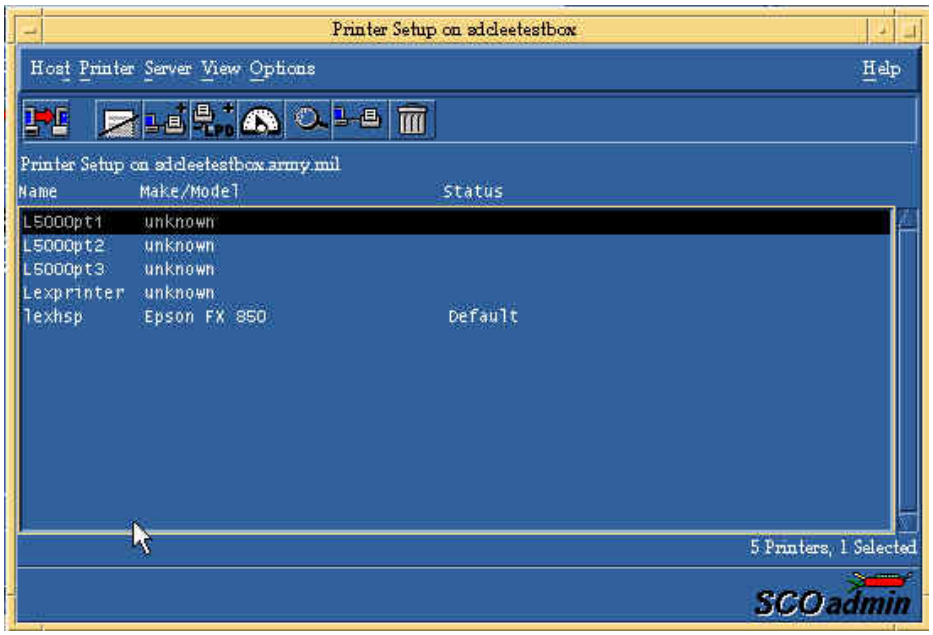


FIGURE 4.1-45 - Printer Setup Window

To Add a printer you must click the Printer option and Figure 4.1-46 will appear. From the window you select any of the available options.

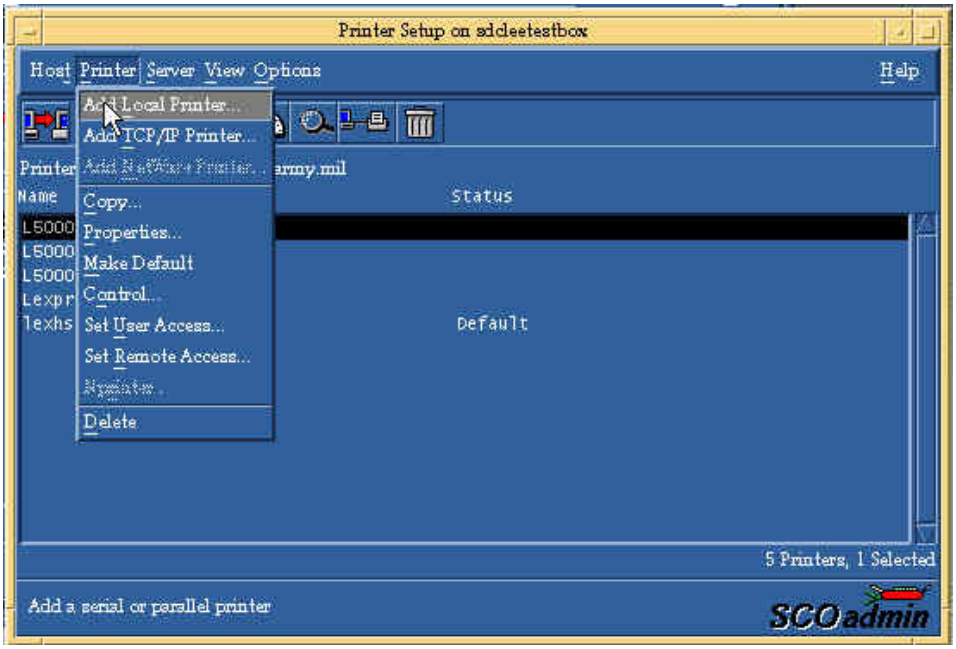


FIGURE 4.1-46 - Printer Setup Window

When you highlight (select) the "Add Local Printer" option Figure 4.1-47 will appear.
When you highlight (select) the "Add TCP/IP" option Figure 4.1-48 will appear.

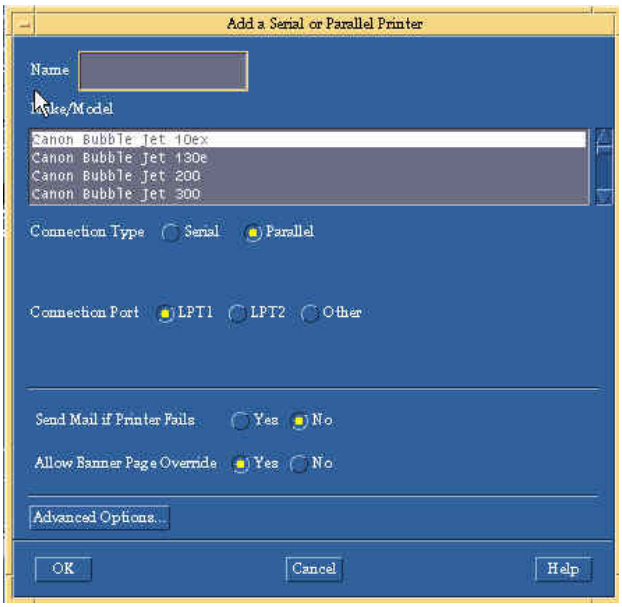


FIGURE 4.1-47 - Printer Setup Window

Adding, modifying, or copying a local printer

Local printers are those connected directly to a host (as opposed to across the network).

The following information must be provided by the AFMIS SA:

Name

Select the name you want to use for the local printer attached to your system. You cannot modify an existing printer name. The SCOadmin Printer Setup Manager does not permit printer names to contain the ``_" character. To add a printer whose name includes a ``_", add it from the command-line. Once the printer name is created, the Printer Setup Manager will be able to manage it.

Make/Model

Select the printer model that matches your printer, or a model with which it is compatible.

Connection Type

Choose Serial or Parallel. If you select Serial, click on Serial Settings for additional options described in ``About serial communication settings".

Connection Port:

For serial printers, COM1 and COM2 ports are displayed that correspond to the first and

second serial ports. For parallel printers, LPT1 and LPT2 are displayed. If you select Other, a Device text box appears. Enter the path of the device that the printer is connected to.

Send Mail if Printer Fails

Select Yes to receive a mail message if the printer fails.

Allow Banner Page Override

Select Yes to allow users to print without a banner page.

Advanced Options

For non-PostScript® printers, you can set the page length, page width, character pitch, and line pitch. Each of these options has a numerical value and a unit value. You can select a unit value in inches, centimeters, or characters. If you do not provide defaults when you configure a printer, the page size and print spacing are taken from the data for your printer type in the terminfo(4) database. For more information on these parameters, see ``Setting default printer page size and spacing".

NOTE: The addition of a printer will fail if a nonexistent port is specified as the connection port.

Adding, modifying, or copying a network printer.

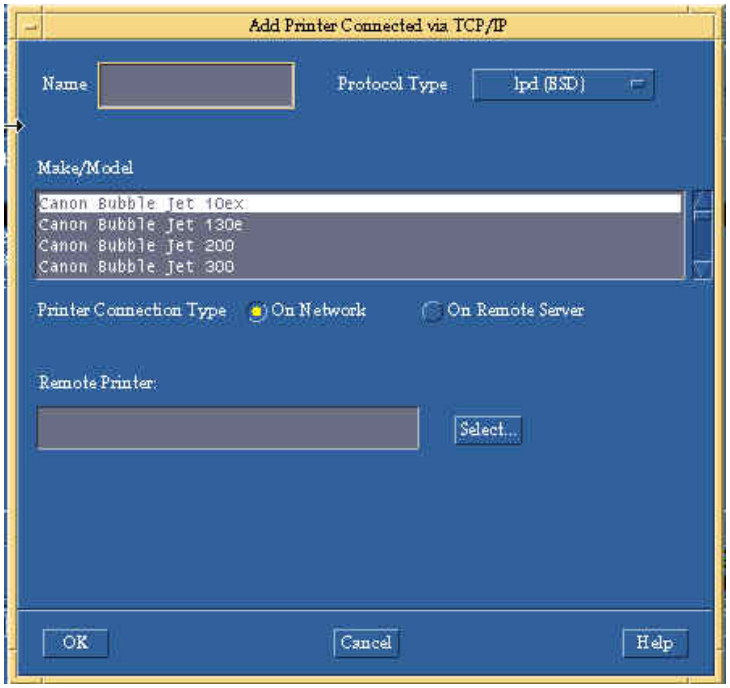


FIGURE 4.1-48 - Printer Setup Window

Network printers are those connected to the installation infracture (as opposed to attached directly to the workstation).

The following information must be provided by the AFMIS SA:

Name
The name to call the remote printer on your local system. You cannot change the name of an existing printer.

The SCOadmin Printer Setup Manager does not permit printer names to contain the ``_" character. To add a printer whose name includes a ``_", add it from the command-line. Once the printer name is created, the Printer Setup Manager will be able to manage it.

Make/Model
The printer model (or compatible model) that matches your printer.

Protocol Type
The spooler type on the remote host: lpd(BSD), the default network printing protocol, or System V (legacy), provided for backwards compatibility with older UNIX systems. For HP printers configured On Network, System V is automatically selected.

Printer Connection Type
If the printer is an Ethernet printer (connected to the network itself instead of connected to a computer), select On Network. Otherwise, select On Remote Server.

Remote System
(This field applies only when On Remote Server is selected.) The name of the host that controls the remote printer. Click on Select to choose from a list.

Remote Printer
The IP Address assigned to the printer (preferably) or the printer name of the remote printer. (When On Network is selected, a Select button appears.)

Removing / Deleting a printer.

To Delete a printer, highlight (select) the printer you wish to remove. Then click the "Delete" option and Figure 4.1-49 will appear.

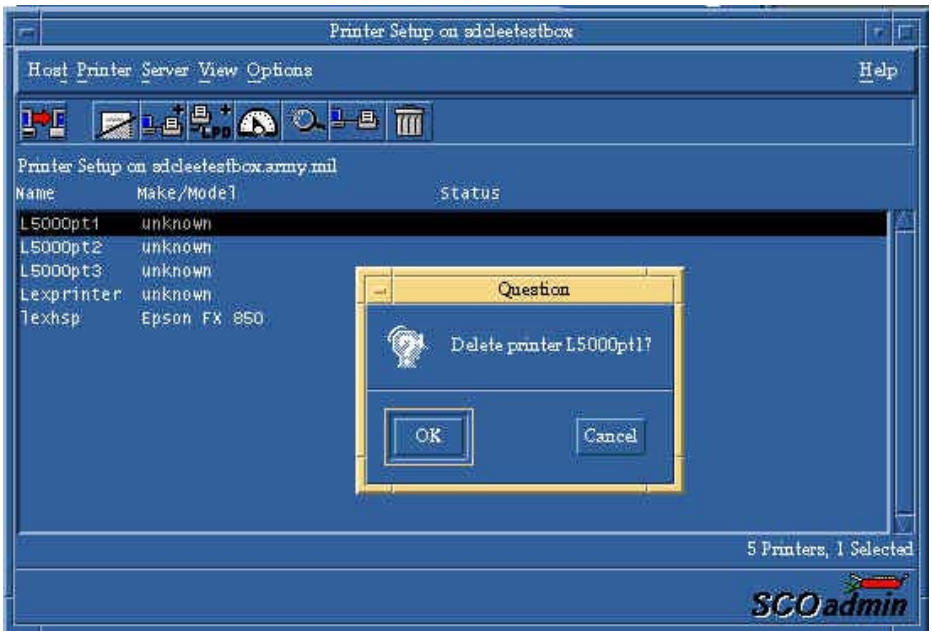


FIGURE 4.1-49 - Printer Setup Window

From this window, just click the"OK" button and the printer is remove and no longer available to be use by anyone.

Starting and stopping the print service

The print service starts automatically each time the system goes into multi-user mode and stops when you bring down the system. Under normal circumstances, you should never have to start or stop the print service manually. (For example, you do not have to stop the print service to change printer configurations or to add forms or filters.)

When you start the print service, the printer configurations, forms, and filters that were in effect when you stopped the print service are restored. It might take a minute or two for these printer configurations to be reestablished before any saved print requests start printing. Any print requests that did not finish printing when the scheduler stopped are printed in their entirety when the print service starts.

However, any time you add a printer, you must stop and start the print service manually without stopping the operating system.

In the Printer Setup Manager, select Server Start or Server Halt (the inappropriate option is unavailable). Refer to figure 4.1-50.

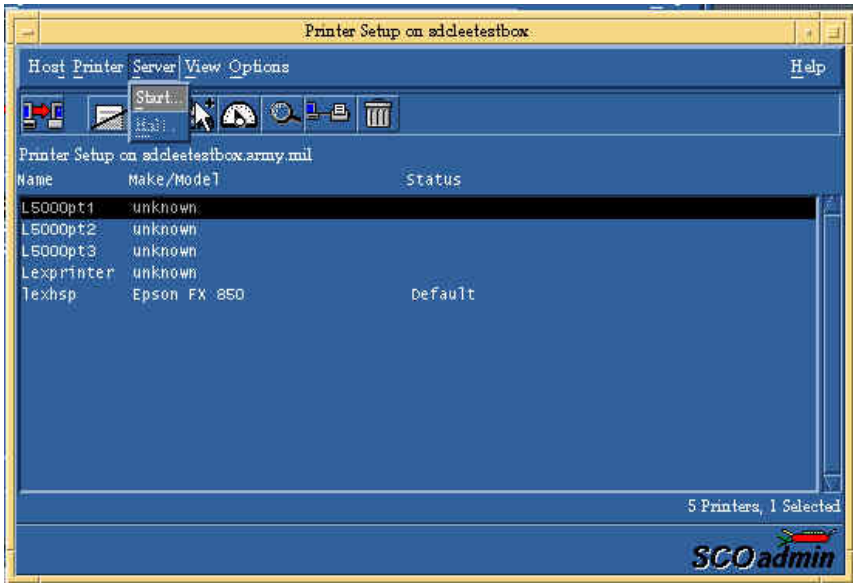


FIGURE 4.1-50 - Printer Setup Window

Click on OK when asked for confirmation. See figure 4.1-51.

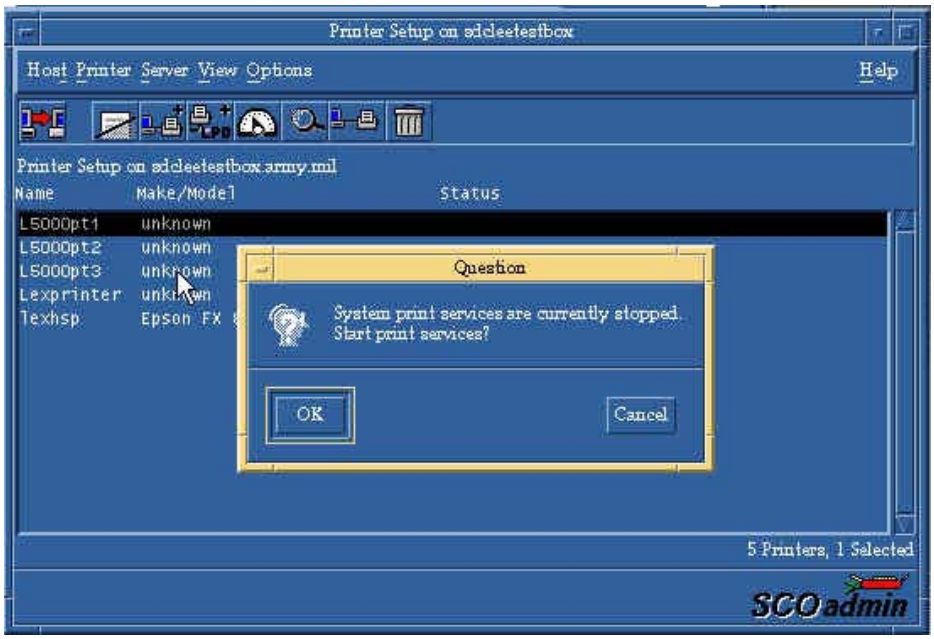


FIGURE 4.1-51 - Printer Setup Window

NOTE: Jobs can appear to pass through a printer that is not online. If a printer is not online or operating properly, you should disable the printer.

4.2.6 Networking

From the SCO Admin window, highlight and click the "Networking" option. See Figure 4.1-52.

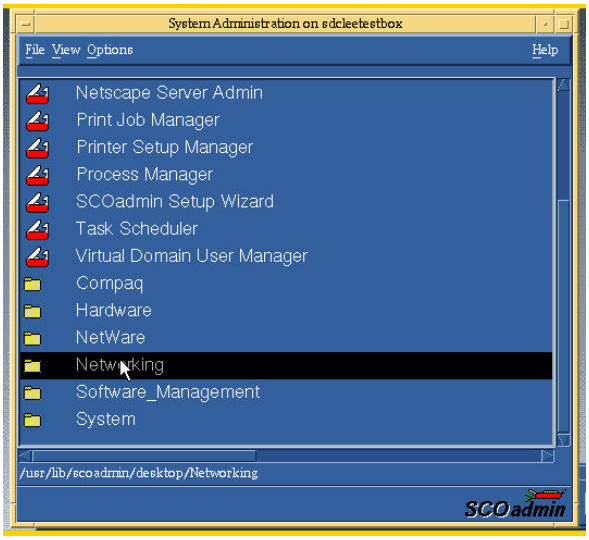


FIGURE 4.1-52 - SCOadmin GUI Window

From this screen, the “Networking” option and Figure 4.1-53 will appear. Several options will be shown. At this time, we will only review the “Network Configuration Manager” option.
For information on the other services, you must refer to the SCO Unixware 7.1 System Handbook.

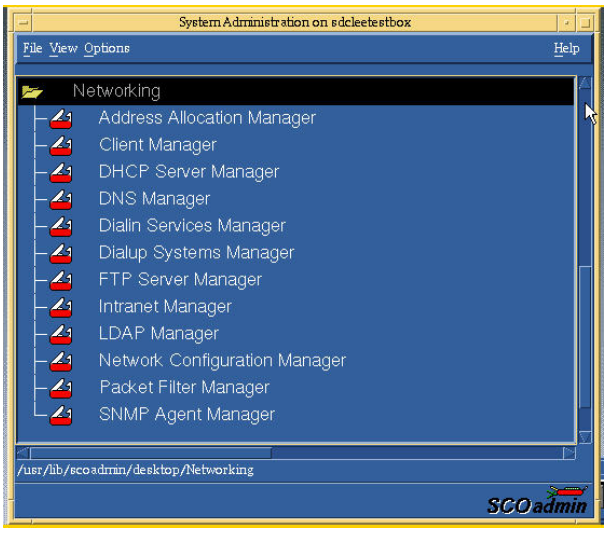


FIGURE 4.1-53 - SCOadmin GUI Window

From this screen, click the “Networking Configuration Manager” option and Figure 4.1-54 will appear.

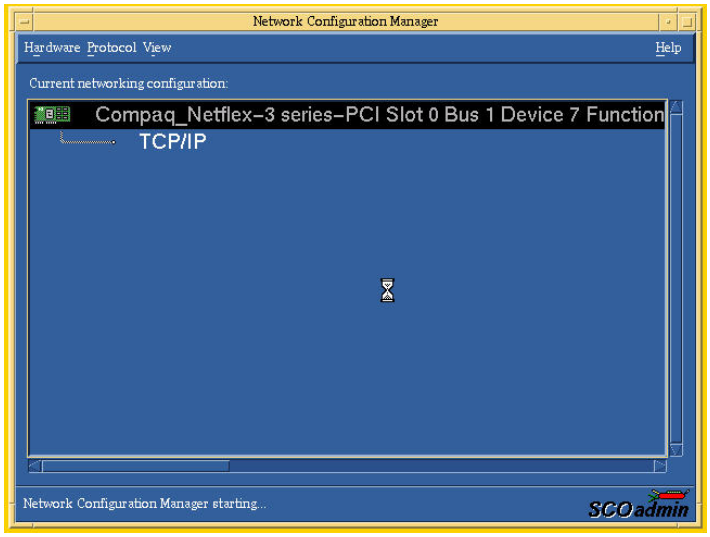


FIGURE 4.1-54 – Network Configuragion Manager Window

From this window, you hightlight “TCP/IP/” option and Figure 4.1.55 will appear.

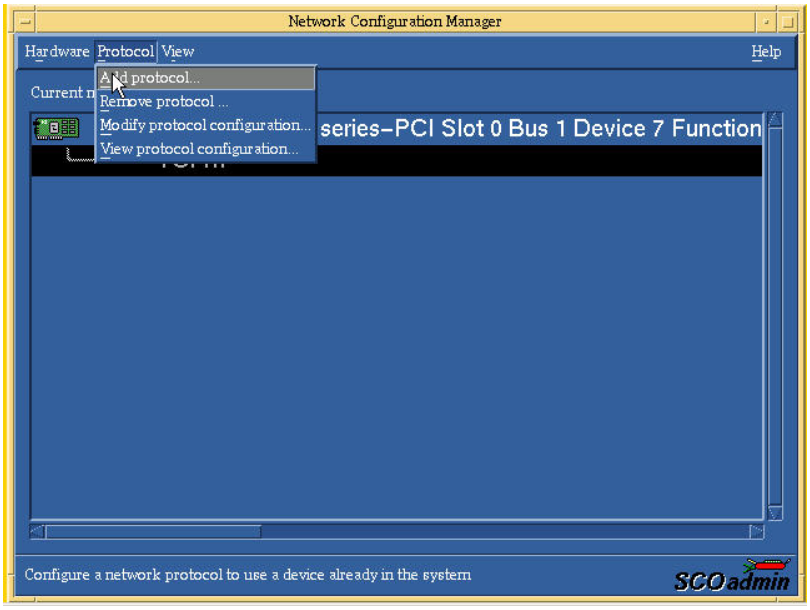


FIGURE 4.1-55 – Network Configuragion Manager Window

From this window, the AFMIS SA should only be concerned with the “Modify protocol configuration” and “View protocol configuration” options only.

If you select the “Modfy” option, the window below (Figure 4.1.56) will allow you to make a change(s) to the network configuration in your SCO server. When finished, click the “OK” button, close all windows and return to the main screen.

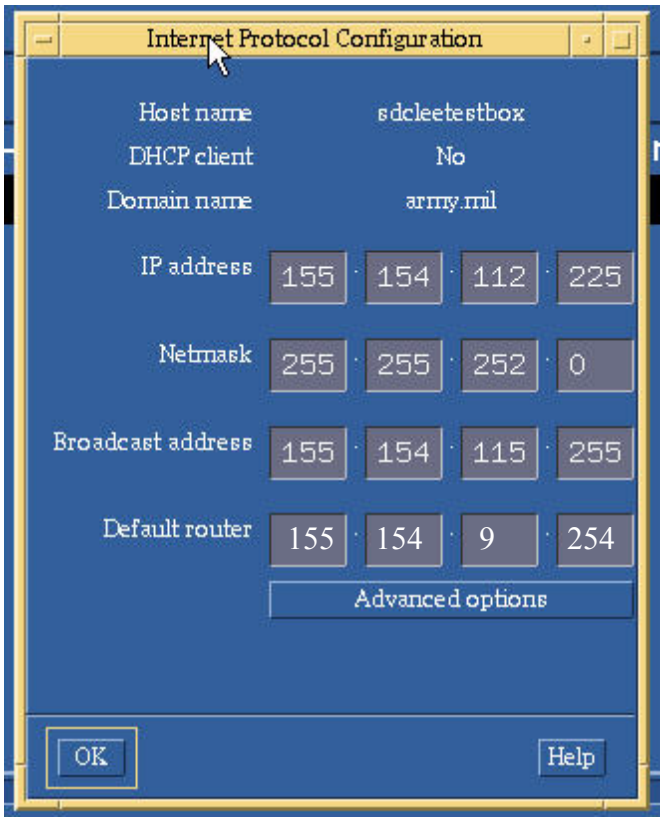


Figure 4.1-56 Internet Protocol Configuration Window

The information in this window is provided by the Directorate of Installation Management (DOIM). The information should not be modified by the AFMIS SA unless directed by the DOIM. **All fields must be filled.**

If you select the “View” option, the window above (Figure 4.1.56) will appear and allow you to view the Internet Protocol Configuration only.

When encountering connectivity problems, this is one area the AFMIS SA should review and insure all values are there and correct.

4.2.7 System

To change the the system clock, you must double click the “System Time Manager” option. See figure 4.1-57.

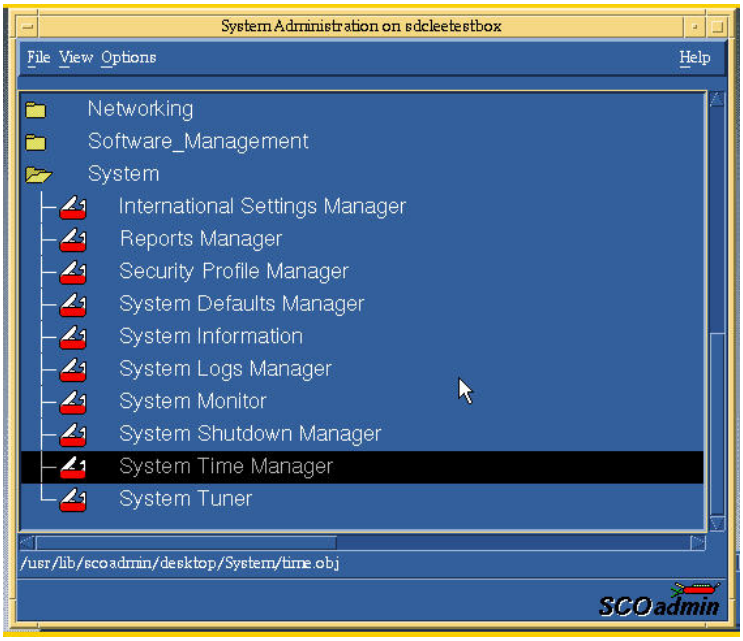


Figure 4.1-57 System Administrator Window

Once you have clicked the System Time Manager, Figure 4.1-58 will appear.

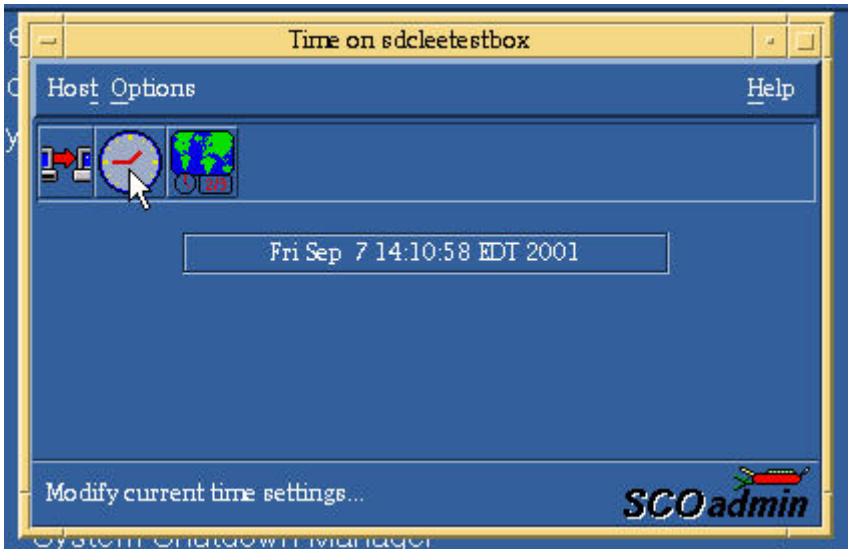


Figure 4.1-58 System Time Window

To set the time, enter the number manually or use the up and down buttons in the graphical version to set the time and date entries. Hours are expressed in 24-hour format. See

Figure 4.1-59. Once completed, close all windows until you return to the main window.

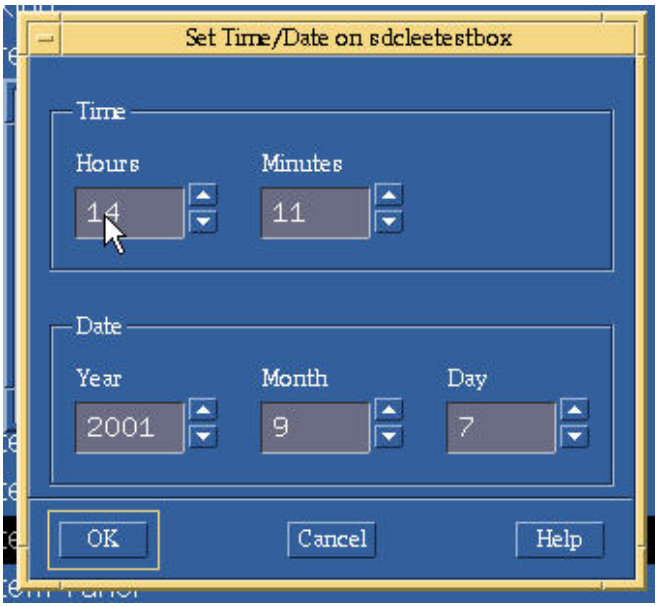


Figure 4.1-59 Time Date Window

4.2.8 SystemTuner

Figure 4.1-60.The System Tuner is the preferred method for changing system tunable parameters. Because UNIX systems are multi-user and multitasking systems, users and processes may at times find themselves competing for the limited resources available on your system. To insure that no user or process can consume too many of the system's resources, resources are allocated and limited by tunable parameters.

System tuning can be of great value in improving system performance. However, because improperly set parameters can make your system unusable, only experienced system administrators with guidance from CAO, SEC LEE should attempt to change tunable parameters.

NOTE:

For further information on tunable parameters, see "Tunable parameters" in the documentation.

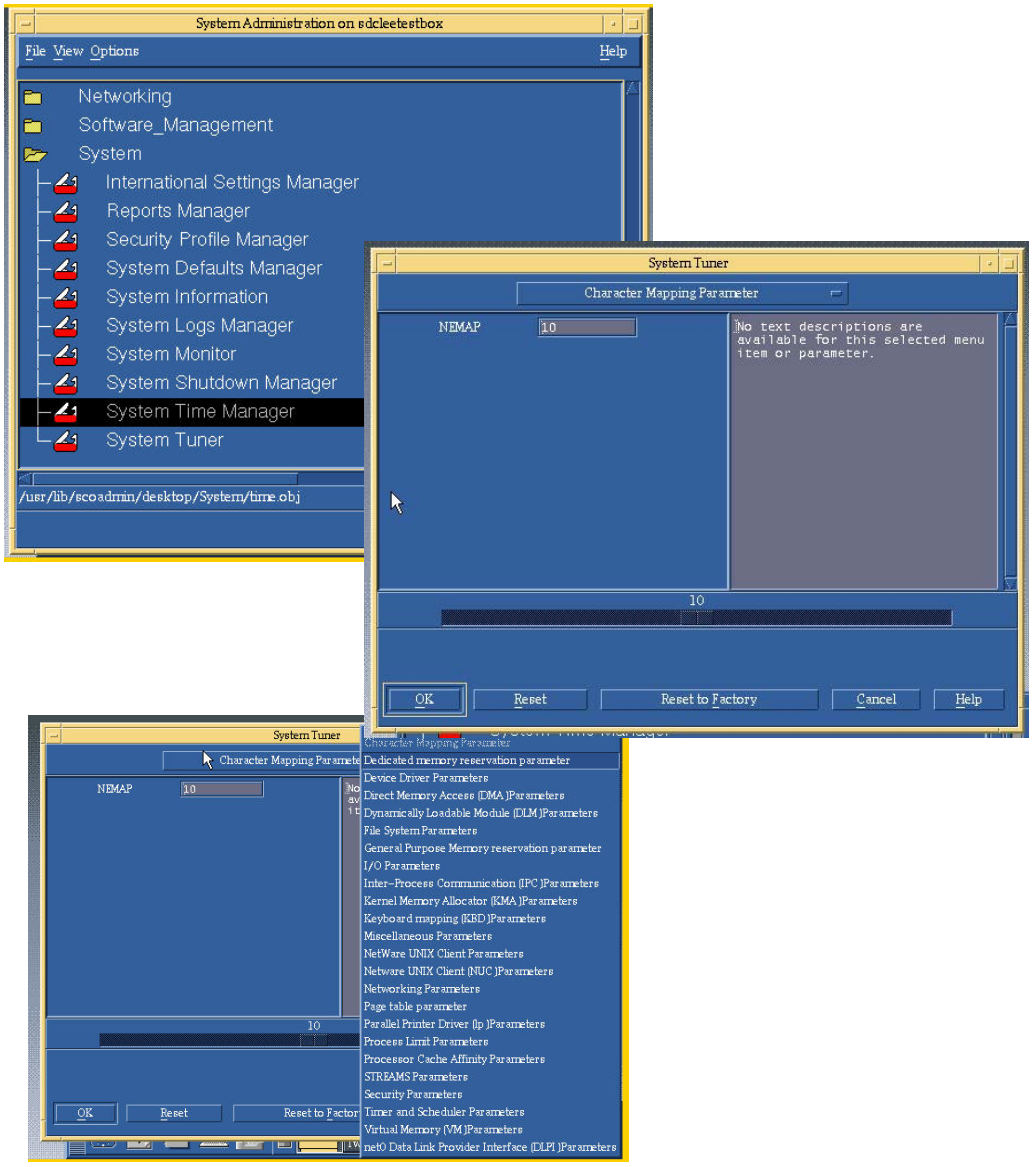


Figure 4.1-60 System Tuner Windows

5. INFORMIX

5.1 INFORMIX Structured Query Language (SQL)

INFORMIX-SQL is a Relational Database Management System designed to, substantially, reduce the amount of time required to organize, store, and retrieve information. INFORMIX is a computer-based, record-keeping system consisting of useful programs or modules that perform data management tasks. INFORMIX-SQL can summarize, group, and format information in ways that would not, otherwise, be possible.

5.1.1 Database Organization

The INFORMIX database is a collection of information or data that is organized into "tables" and "index" files. A data "table" is an organized collection of defined variables and associated information or data contained in these variables. An index "file" is a predefined list of variables called "keys" that keep track of the rows in a table based on values stored in one or more columns. Index "files" are used to find information or data more quickly. For every table in a database, there will always be a corresponding index. The data "tables" and "index" files are contained in a directory structure. In the database directory structure, there are special files called "system" tables. "System" tables are INFORMIX software tables used by INFORMIX to manage/maintain the database, and contain information on the data "tables" and "index" files. It is important to note that these tables are only to be used by INFORMIX and should not be modified in any way. The result of modification to these tables may cause the deletion of the entire database!

5.1.2 INFORMIX Software

The INFORMIX software is the interface between the operating system and the application database and programs. The INFORMIX software is organized into libraries, which are collections of directories containing files used by INFORMIX, to maintain the database structure; and allow the application programs to access the database to perform some type of processing. In order for other individuals to access the database and execute application programs, "connect" permissions must exist for each authorized database user. Another aspect of INFORMIX is the transaction log. The transaction log contains the "before" and "after" images of modifications to the database. If a modification is unsuccessful (i. e., program/system failure), INFORMIX will restore (put back) the "before" image of the database before the modification was attempted. "SACEGO" is an INFORMIX command that runs a compiled ACE report to generate a hard copy table listing. These table listings are used to verify data output that is the result of program or conversion execution. The SA can use this output as a reference for finding information that may help resolve application problems. INFORMIX also utilizes several environmental variables in each authorized user ".profile" file.

5.1.3 Using INFORMIX-SQL

INFORMIX-SQL is utilized by the AFMIS SA to maintain the AFMIS database, monitor the application system, observe user activities, and identify and correct application problems. SQL are stand-alone statements used by the INFORMIX software to perform routine maintenance, correct problems, and monitor application software performance. The format for identifying or creating an SQL is "file1.sql", where the ".sql" extension on the file name, identifies the file as a special purpose INFORMIX file.

- SELECT Syntax. The SELECT statement is the most used SQL statement in INFORMIX. This is a "query" of the contents of a table based on one or more conditions. The only requirements in a SELECT statement are the keywords "SELECT" and "FROM." The following syntax represents an expanded SELECT statement with several optional keywords and a detailed explanation of each part of the SQL statement:

  SELECT [all or specific] FROM [table name]
  WHERE [variable] [option(s)] [occurrence or variable]
  ORDER BY [occurrence or variable]

  •• SELECT. SELECT retrieves all records associated with the chosen specific criteria.

  - "all or specific". "All" may be represented with an "*" and "specific" can be any combination of one or more field names contained on the table.

  - FROM. A command that indicates/points to the table where the information or data is extracted.

  - "table name". Specific name of the table from where the information or data is extracted.

  - WHERE. An optional clause that fine tunes the SELECT statement to retrieve only the particular occurrence(s) requested.

  - "variable". A value that causes the SELECT statement to choose information or data for the following option(s).

  - "option(s)". An argument that indicates what the variable, being selected, should or should not look like.

  - "occurrence or variable". Specific data value used to narrow select statement criteria.

  •• ORDER BY. An optional clause used to organize selected data for easier review.

- "occurrence or variable". Data value that is used to organize selected data.

- WHERE Syntax.

  - The WHERE clause is an optional clause used to narrow a SELECT statement so only the specific required information is retrieved from the database. There are various ways of building a WHERE clause, as the following examples illustrate.

  - LIKE. Used to check a field on a table for a value that is similar to the specified literal value criteria. "Wild cards" are used to find the information or data.

    (i. e.) where [field name] like "value%"

  - MATCHES. Used to check a field on a table for a value that equals the specified literal value criteria. "Wild cards" are used to find the information or data.

    (i. e.) where [field name] matches "value*"
    where [field name] matches "XYZ"

  - NULL. Used in conjunction with finding fields that do not hold values. This is not a zero value but considered as a "non-value" to the system.

    (i. e.) where [field name] IS NULL

  - NOT NULL. Used in conjunction with finding fields that contain unknown values.

    (i. e.) where [field name] IS NOT NULL

  - = . Used to select information or data that is equal to the specified literal value criteria. This is a comparison between two values.

    (i. e.) where [field name] = "value"

  - != . Used to select information or data that is not equal to the specified literal value criteria. This is a comparison between two values.

    (i. e.) where [field name] != "value"

- TODAY. Used in conjunction with retrieving data from a table based on the current system date.

  (i. e.) where [field name] << TODAY
  where [field name] < = TODAY
  where [field name] = TODAY
  where [field name] > = TODAY
  where [field name] > TODAY

- AND. Used to join two or more WHERE clause option statements. Both statements must select true or no data will be retrieved.

  (i. e.) where [field name] = "value" and
  [field name] IS NOT NULL

- OR. Used to join two or more WHERE clause option statements. The OR is similar to the AND but will select data if either statement is true.

  (i. e.) where [field name] <= TODAY or
  [field name] != "value" or
  [field name] matches "[XYZ]"

- SELECT COUNT(*) Syntax.

  - The SELECT COUNT(*) statement is used to retrieve a whole number count of all the records contained on a database table. The SA can use a WHERE clause in conjunction with the SELECT COUNT(*) statement to narrow the search, if desired.

    (i. e.) SELECT COUNT(*) FROM [table name]

- SQL Manipulation Statements.

  - The following three statements are only used by the SA under the direction of the AFMIS Customer Assistance Office (CAO) to manipulate the data in a database table.

    - INSERT. Adds record(s) to the table.

    - UPDATE. Modifies record(s) or values on the table.
      Must use WHERE clause.

    - DELETE. Removes the specified record(s) from the table.
      Must use WHERE clause.

- Comments in SQL Statements. The history of each SQL should contain the following:

  •• {}. Used to enclose comments in SQL statements and placed in the first column of the first line of the file. The comments are placed in between the "{}".

  (i. e.) {grant.sql - connects authorized users to the database}

  - Name. The descriptive name of the SQL that indicates what the SQL will do.

  - Comments. Comments are a detailed explanation of what the SQL will do during execution and any related information that is necessary.

- Running SQL.

  SQL statements are "stand-alone" code that can be run in background in order to free the SA's terminal for further work.

  •• Executing SQL. SQL may be run straight from the command line or by a "script". Output will be sent to the screen or to a named file.

  (i. e.) isql afmis filename
  isql afmis filename >out1

  •• Executing SQL in Background. SQL run in background will free the terminal for other work, and the output will be placed in named files for informational purposes.

  (i. e.) nohup isql afmis filename >out1 2>out2 &

  - nohup. No hang up. Even if terminal is logged-off, the SQL will continue to execute.

  - > This symbol tells the system to "redirect" (place) the "messages" (output) generated during execution into a file.

  - 2> Sends "error out" to a file informing the SA if there were any problems or if the SQL was successful. The SA may name these files in any manner chosen, however, remember that each SQL is run for a specific reason and output files are named, accordingly, if the same SQL is run several times in a row but for different reasons.

  - & Tells the system that this SQL will be run in background.

5.1.4 Database Administration SQL

The SA may be required to execute some specialized SQL in order to efficiently maintain the AFMIS database. The following statements will be run under the guidance of CAO:

- UNLOAD.

  The UNLOAD statement is used to copy data records from a table to a UNIX flat file. The purpose of this is to ensure data is not corrupted while conducting routine database maintenance.

  ```
  UNLOAD TO "path name or file name"
  SELECT [all or specific]
  FROM [table name]
  WHERE [field name] = "value"
  ```

- LOAD.

  The LOAD statement is used to copy data records into a data table from a UNIX flat file that has been previously UNLOADED from a data table. The BEGIN WORK and COMMIT WORK statements around the LOAD are known as a transaction. A transaction is an INFORMIX safety feature designed to protect the data table from corruption if a system failure occurs during a data manipulation statement.

  ```
  BEGIN WORK;
  LOAD FROM "path name or file name"
  INSERT INTO [table name];
  COMMIT WORK
  ```

- CHECK TABLE.

  The CHECK TABLE statement checks the indexes of a table to determine if they have become corrupted. An error message will be produced if the system detects any irregularities in the index file.

  ```
  CHECK TABLE [table name];
  CHECK TABLE [table name];
  CHECK TABLE [table name];
  CHECK TABLE [table name]
  ```

- REPAIR TABLE.

  THE REPAIR TABLE statement repairs the indexes (in most cases) of a table if they have become corrupted.

  REPAIR TABLE [table name];
  REPAIR TABLE [table name];
  REPAIR TABLE [table name];
  REPAIR TABLE [table name]

- GRANT.

  The GRANT statement will provide access privileges to the list of authorized users on the proper database.

  GRANT CONNECT TO

  user name ,
  user name ,
  user name ,
  user name ,
  user name

- REVOKE.

  The REVOKE statement will remove access privileges on the database for a list of specified users.

  REVOKE CONNECT FROM

  user name ,
  user name ,
  user name ,
  user name ,
  user name ,
  user name

- DROP TABLE.

  The DROP TABLE statement is used to remove a table from the database.

  DROP TABLE [table name]

- CREATE TABLE.

The CREATE TABLE statement is used to create a table or recreate one that has been dropped. The "NOT NULL" is used ONLY if the field does not allow null values.

```
CREATE TABLE [table name]
    (
        [field name]        [data type](size)(NOT NULL),
        [field name]        [data type](size),
        [field name]        [data type](size)
    )
```

5.2 TISA/TISA-W/IFA Database

The TISA/IFA database is composed of interactive tables used in conjunction with the TISA, IFA, and TISA-W subsystem application software. Of the tables, 12 are INFORMIX system tables designed to keep track of tables, columns, indexes, views, synonyms, and permissions on the database. The remaining tables are designed to hold all information (data) required to process the TISA/IFA software applications.

5.2.1 TISA/TISA-W/IFA Database Location

The TISA/IFA database is located on the "/informix/tisa" file system in the directory "afmis.dbs". The ".dbs" extension identifies this directory as a database to both the application and INFORMIX software. In the "afmis.dbs" directory, there are two types of files, ".dat" files and ".idx" files. The ".dat" extension designates that file as a table that contains the applications data. The ".idx" extension contains index information for each corresponding data file. There are several INFORMIX system data tables and their corresponding index files identifiable by prefix "sys." They are designed to keep track of data tables, columns, indexes, views, synonyms, and permissions on the database. Figure 5.2-1 lists each of the TISA/IFA database tables by ID and name. Permissions of the files in the "afmis.dbs" directory are "read", "write", and "execute" for the owner ("afmis"), and group ("informix"), and "read" only for any other valid system logins.

Database Table	Table Name
BDFA	BDFA COMPUTATION ITEMS
CAH	CUSTOMER ACCOUNT HEADER
CAT	CUSTOMER ACCOUNT TRAILER
CDN	CUSTOMER DOCUMENT NUMBER
CIF	CUSTOMER INFORMATION FILE
CINC	CUSTOMER INFORMATION NOT CURRENT
COF	CUSTOMER ORDER FILE
COM	COMMUNICATIONS FILE
CRF	CANDIDATE REQUISITION FILE
CSHC	COMMON SERVICES HEADCOUNT
CTL	REPORT CONTROL
CXV	CALL ORDER CROSS REFERENCE VRGC NUMBER
DAS	DINING FACILITY ACCOUNT STATUS
DFC	DINING FACILITY CONTRACT
DFCD	DINING FACILITY CLOSED DATES
DFF	DELIVERY FREQUENCY FILE
DFX	DINING FACILITY EXTENSION
DHF	DOCUMENT HISTORY FILE
DHI	DOCUMENT HISTORY INPUT
DPSC	DPSC CHANGES FOR MIF NSN
DSC	DESIGN CAP FILE
DHO	DOCUMENT HISTORY OUTPUT
H3161	3161 HEADER
ILH	ISSUE LIST HEADER
IUE	INSTALLATION UNIQUES EXTERNALS
IUF	INSTALLATION UNIQUES FILE
IUF2	INSTALLATION UNIQUES FILE #2
IUF3	INSTALLATION UNIQUES FILE #3
LPO	LOCAL PURCHASE ORDER
LPP	LOCAL PURCHASE PRICE
MCI	MEAL COST INFORMATION
MIF	MASTER ITEM FILE
MMF	MASTER MENU FILE
MMR	MASTER MENU RECAP
OEF	OBLIGATION ESTIMATE FILE
OHC	OTHER HEADCOUNT
OIS	OTHER ISSUES 2969
PRC	PRICE TABLE

FIGURE 5.2-1 - TISA Database Tables

Database Table	Table Name
RCF	RECEIPT CONTROL FILE
RCH	RECEIPT CONTROL HEADER
RCL	REPORT CONTROL LOG
REF	MASTER ITEM REFERENCE
RHC	REIMBURSABLE HEADCOUNT 2969
RHF	RECIPE HEADER FILE
RIF	RECIPE INSTRUCTION FILE
RIN	RECIPE INGREDIENT FILE
RISA	REIMBURSABLE ISSUES AND SALES ACCOUNT
RSFA	REIMBURSABLE SPECIAL FOOD ALLOWANCE
SCC	SOURCE CODE CHANGE
SFA	SPECIAL FOOD ALLOWANCE
SYSUSERS	USERS WITH CONNECT PERMISSIONS
SIF	STARFIARS INTERFACE FILE
T3161	3161 TRAILER
TIN	TRANSACTION INPUT
TOT	TRANSACTION OUTPUT
TRF	TRANSACTION REGISTER FILE
VIF	VENDOR INFORMATION FILE
VOF	VENDOR ORDER FILE
VRGC	VOUCHER REGISTER AND GENERAL CONTROL

FIGURE 5.2-1 - TISA Database Tables (CONT)

5.3 DFO Database

The DFO database is composed of interactive data tables and indexes used in conjunction with the DFO subsystem application software. Of the data tables and indexes, 10 are INFORMIX system tables and indexes designed to keep track of data tables, columns, indexes, views, synonyms, and permissions on the database. Figure 5.2-2 lists each of the DFO database tables by ID and name. The remaining data tables and indexes are designed to hold all information (data) that is required to process automated mission procedures for each installation.

5.3.1 DFO Database Location

The DFO database is located on the "/Informix/dfo" file system in the directory, /informix/dfo/afmis/afmisdb.dbs. The ".dbs" extension identifies this directory as a database to the application and INFORMIX software. In the "afmisdb.dbs" directory, there are two types of files, ".dat" files and ".idx" files. The ".dat" extension designates that file as a table and the ".idx" extension contains information on the indexes for each table. Preceding each of these two extensions, there is a unique character table name, while system tables and indexes always begin with a prefix of "sys". Permission of the files in the "afmisdb.dbs" directory are "read", "write", and "execute" for the owner ("afmis"), and group ("informix"), and "read" and "write" only for any other valid system logins.

Database Table	Table Name
ACCT_HEAD	ACCOUNT HEADER TABLE
ACCT_TRL	ACCOUNT TRAILER TABLE
BATCHRPT	DFO BATCH REPORT TABLE
BBD	BULLETIN BOARD DATA
BDFA_INFO	BASIC DAILY FOOD ALLOWANCE INFORMATION TABLE
CASH_TURNIN	CASH TURN-IN TABLE
CROSS	DFO IDENTIFICATION TABLE
CURRENT_DATA	CURRENT DATA TABLE
DF0000IN	DF INPUT
DF0000OUT	DF OUTPUT
ERF	EQUIPMENT REPLACEMENT FILE
H3161	3161 TABLE
ISSFREQ	ISSUE FREQUENCY TABLE
KITREQN	KITCHEN REQUISITION TABLE
MEAL_CST	MEAL COST TABLE
MENUHEAD	MENU HEADER TABLE
MENUTRAIL	MENU TRAILER TABLE
MIF	MASTER ITEM FILE
MIFINV	DFO INVENTORY TABLE
MISC_DATA	MISCELLANEOUS DATA TABLE
ML_PROJ	MEAL PROJECTIONS
ML_12_COST	MEAL COST 12 TABLE
MSTMENU	MASTER MENU TABLE
NWD	NON WORKING DAYS
RCPHEAD	RECIPE HEADER TABLE
RCPINGR	RECIPE INGREDIENT TABLE
RCPINST	RECIPE INSTRUCTION TABLE
SHOPLIST	SHOPPING LIST
SLSTAUS	SHOPPING LIST STATUS
SYSUSERS	USERS WITH CONNECT PERMISSIONS
TOT_HC_2969	TOTAL HEADCOUNT 2969

FIGURE 5.2-2 - DFO Database Tables

6. AFMIS DIRECTORY STRUCTURE

6.1 Database Administrator

The "afmis" login is the assigned AFMIS DBA for the TISA/IFA, as well as, the DFO databases. The AFMIS user is the owner of all database tables, indexes, and application software. The home directory for the AFMIS login is "/work/acct/afmis". The following is a description of each of the files contained in this directory structure:

/work/acct/afmis

bin cpwrk work

/work/acct/afmis/bin

ajkR05.4ge	ajkR07.4ge	ajkR23.4ge	ajkR24.4ge
ajk71u.x01	ajk72u.x01	echovar	load_pkg
load_pv	startPV	startSCP	listtape
resettp2	resettp4		

/work/acct/afmis/bin/dbadmin

DFO12DB.4ge	DFO12DB.4gl	SCP12DB.4ge	SCP12DB.4gl
AHCDB.4ge	AHCDB.4gl		

/work/acct/afmis/bin/dbadmin/sql

DFO12IDX.sql	SCP12IDX.sql	AHCIDX.sql	CHKTABLE.sql
REPAIR.sql	RECLUSTER.sql	GRANT.sql	REVOKE.sql
DROPIDX.sql	LOG.sql	dfolog.sql	

/work/acct/afmis/bin/menus

ifa	menu.x1	menu.x2	tisa
tisabt	tisawh	dfoconv	dfo.x01
all.x01	sa.x01	tisa_ifa.x01	

/work/acct/afmis/bin/profiles

afmis.pro	informix.pro	warehouse.pro	prnt_sel.pro
dfosa.pro	dfo.pro	tisa.pro	ifa.pro
eod.pro			

/work/acct/afmis/bin/util

95p_err_prt	asreq_err_prt	bpa_err_prt	budbc
bur2	clean_afmis	clean_ahc	clean_pv
del_lines	dh_err_prt	dv_err_prt	eod_err_prt
eom_err_prt	err_log_prt	fa_err_prt	fm_err_prt
ia_err_prt	is_err_prt	lc_err_prt	pi_err_prt
rc_err_prt	ri_err_prt	rq_err_prt	rv_err_prt
trname.sql			

/work/acct/afmis/cpwrk

*SCP/ICP Load Scripts

NOTE: Contents of this directory will be the last change package (either SCP or ICP) applied to the system.

/work/acct/afmis/work

/tisa/bt

IP_tbl.dpsc	ajk0cp.4ge	ajk1fp.4ge	ajk1ip.4ge
ajk1iu.x01	ajk1jp.4ge	ajk1kp.4ge	ajk1qp.4ge
ajk20s.4ge	ajk2fp.4ge	ajk2gp.4ge	ajk2op.4ge
ajk2oq1.sql	ajk2oq2.sql	ajk2pp.4ge	ajk2pq1.sql
ajk2qp	ajk2ts	ajk2up	ajk4dp.4ge
ajk4fp.4ge	ajk4gp.4ge	ajk4jp.4ge	ajk4pp.4ge
ajk6mp.4ge	ajk6np.4ge	ajk6op.4ge	ajk6pp.4ge
ajk6pq1.sql	ajk75p.4ge	ajk75q6.sql	ajk75u.x02
ajk75u.x03	ajk76p	ajk77p.4ge	ajk78p.4ge
ajk78u.x01	ajk79p	ajk815.frm	ajk816.frm
ajk817.frm	ajk86p.4ge	ajk870.frm	ajk871.frm
ajk872.frm	ajk873.frm	ajk91u.x01	ajk93p.4ge
ajk94p.4ge	ajk96p.4ge	ajk96q1.sql	ajk96q2.sql
ajk96q3.sql	ajk96q4.sql	ajk96q5.sql	ajk96u.x1
ajk96u.x2	ajk96u.x3	ajk96u.x4	ajk97p.4ge
ajk97u.x1	ajk98p.4ge	ajkadu.x01	ajkadu1.sql
ajkadu2.sql	ajkadu3.sql	ajkaop.4ge	ajktgp.4ge
ajku4p.4ge	ajku5p.4ge	ajku6p.4ge	ajku7p.4ge
ajku7u.x1	ajkulp.4ge	ajkv5p.4ge	ajkv6p.4ge
ajkxgp.4ge	ajkxqp.4ge	ajkydp.4ge	ajkyds.sql
ajkyep.4ge	ajkyfp.4ge	ajkygp.4ge	ajkyjp.4ge
ajkymp.4ge	ajkynp.4ge	ajkypp.4ge	ajkysp.4ge
ajkyss.sql	ajkytp.4ge	ajkytu.x01	ajkyup.4ge
ajkyvp.4ge	ajkywu.x01	ajkyxu.x01	ajkz0p.4ge
ajkz1p.4ge	ajkz3p.4ge	ajkz3u.x01	ajkzgp.4ge
ajkzjp.4ge	ajkzop.4ge	ajkzpp.4ge	

/tisa/dh

ajk613.frm	ajk614.frm	ajk615.frm	ajk616.frm
ajk617.frm	ajk619.frm	ajk620.frm	ajk622.frm
ajk623.frm	ajkyap.4ge	ajkycp.4ge	ajkyhp.4ge
ajkyip.4ge	ajkykp.4ge		

/tisa/dv

ajk0ap.4ge	ajk0bp.4ge	ajk0fp.4ge	ajk0ip.4ge
ajk0wp.4ge	ajk0xp.4ge	ajk732.frm	ajk733.frm
ajk734.frm	ajk735.frm	ajk736.frm	ajk737.frm
ajk738.frm	ajk739.frm	ajk740.frm	ajk741.frm
ajk742.frm	ajk743.frm	ajk744.frm	ajk745.frm
ajk746.frm	ajk747.frm	ajk764.frm	ajk765.frm
ajk766.frm	ajk767.frm	ajk768.frm	ajk769.frm
ajk770.frm	ajk771.frm	ajk772.frm	ajk773.frm
ajk783.frm	ajk784.frm	ajk785.frm	ajk786.frm
ajk787.frm	ajk788.frm	ajk809.frm	ajk810.frm
ajk811.frm	ajk812.frm	ajkz2p.4ge	ajkzap.4ge
ajkzbp.4ge	ajkzcp.4ge	ajkzdp.4ge	ajkzhp.4ge
ajkzip.4ge	ajkznp.4ge	ajkzrp.4ge	ajkztp.4ge
ajkzvp.4ge			

/tisa/fa

ajk1bp.4ge	ajk1ep.4ge	ajk1gp.4ge	ajk1hp.4ge
ajk1mp.4ge	ajk1op.4ge	ajk1pp.4ge	ajk1up.4ge
ajk1vp.4ge	ajk1wp.4ge	ajk1yp.4ge	ajk1zp.4ge
ajk2ip.4ge	ajk2kp.4ge	ajk2lp.4ge	ajk643.frm
ajk657.frm	ajk658.frm	ajk659.frm	ajk660.frm
ajk661.frm	ajk662.frm	ajk663.frm	ajk664.frm
ajk680.frm	ajk681.frm	ajk682.frm	ajk684.frm
ajk685.frm	ajk686.frm	ajk687.frm	ajk688.frm
ajk689.frm	ajk690.frm	ajk691.frm	ajk692.frm
ajk693.frm	ajk694.frm	ajk697.frm	ajk698.frm
ajk699.frm	ajk789.frm	ajk792.frm	ajk794.frm
ajk795.frm	ajk796.frm	ajk7hp.4ge	ajk805.frm
ajk806.frm	ajk814.frm	ajk878.frm	ajk879.frm
ajk880.frm	ajk881.frm	ajk882.frm	ajk883.frm
ajk884.frm	ajk885.frm	ajk886.frm	ajk887.frm
ajk888.frm	ajk894.frm	ajk981.frm	

/tisa/fm

ajk3ap.4ge	ajk3bp.4ge	ajk3ep.4ge	ajk3gp.4ge
ajk3hp.4ge	ajk4ep.4ge	ajk4ip.4ge	ajk4mp.4ge
ajk4mu.x1	ajk4qp.4ge	ajk704.frm	ajk714.frm
ajk719.frm	ajk720.frm	ajk723.frm	ajk724.frm
ajk725.frm	ajk726.frm	ajk727.frm	ajk728.frm
ajk729.frm	ajk730.frm	ajk731.frm	ajk748.frm
ajk749.frm	ajk750.frm	ajk751.frm	ajk752.frm
ajk753.frm	ajk754.frm	ajk755.frm	ajk756.frm
ajk757.frm	ajk758.frm	ajk759.frm	ajk760.frm
ajk761.frm	ajk762.frm	ajk763.frm	ajk790.frm
ajk791.frm	ajk793.frm	ajk797.frm	ajk798.frm
ajk799.frm	ajk800.frm	ajk853.frm	ajk854.frm
ajk855.frm	ajk856.frm	ajk857.frm	ajk858.frm
ajk877.frm	ajkqdu.4ge	ajkuap.4ge	ajkubp.4ge
ajkubs.4ge	ajkucs.4ge	ajkudp.4ge	ajkuep.4ge
ajkufp.4ge	ajkugs.4ge	ajkuhs.4ge	ajkujp.4ge
ajkukp.4ge	ajkump.4ge	ajkunp.4ge	

/tisa/ia

ajk023.frm	ajk045.frm	ajk046.frm	ajk047.frm
ajk048.frm	ajk057.frm	ajk058.frm	ajk059.frm
ajk061.frm	ajk062.frm	ajk063.frm	ajk064.frm
ajk101.frm	ajk102.frm	ajk103.frm	ajk104.frm
ajk105.frm	ajk106.frm	ajk108.frm	ajk109.frm
ajk110.frm	ajk111.frm	ajk112.frm	ajk113.frm
ajk114.frm	ajk115.frm	ajk116.frm	ajk117.frm
ajk118.frm	ajk119.frm	ajk120.frm	ajk121.frm
ajk122.frm	ajk123.frm	ajk124.frm	ajk125.frm
ajk126.frm	ajk134.frm	ajk135.frm	ajk136.frm
ajk137.frm	ajk138.frm	ajk139.frm	ajk141.frm
ajk148.frm	ajk149.frm	ajk150.frm	ajk151.frm
ajk152.frm	ajk153.frm	ajk155.frm	ajk156.frm
ajk157.frm	ajk160.frm	ajk161.frm	ajk162.frm
ajk163.frm	ajk164.frm	ajk165.frm	ajk166.frm
ajk167.frm	ajk168.frm	ajk169.frm	ajk170.frm
ajk171.frm	ajk172.frm	ajk173.frm	ajk174.frm
ajk175.frm	ajk176.frm	ajk178.frm	ajk184.frm
ajk185.frm	ajk186.frm	ajk187.frm	ajk188.frm
ajk189.frm	ajk190.frm	ajk191.frm	ajk199.frm
ajk204.frm	ajk205.frm	ajk206.frm	ajk207.frm
ajk208.frm	ajk209.frm	ajk210.frm	ajk230.frm
ajk231.frm	ajk232.frm	ajk233.frm	ajkg0p.4ge

ajkg1p.4ge	ajkg1q.sql	ajkg2p.4ge	ajkg3p.4ge
ajkg4p.4ge	ajkg6p.4ge	ajkg7p.4ge	ajkg8p.4ge
ajkg9p.4ge	ajkgap.4ge	ajkgbp.4ge	ajkgdp.4ge
ajkgep.4ge	ajkgfp.4ge	ajkggp.4ge	ajkghp.4ge
ajkgip.4ge	ajkgjp.4ge	ajkgjq1.sql	ajkgjq2.sql
ajkgju.x01	ajkgju.x2	ajkgkp.4ge	ajkgmp.4ge
ajkgnp.4ge	ajkgop.4ge	ajkgpp.4ge	ajkgqp.4ge
ajkgrp.4ge	ajkgsp.4ge	ajkgvp.4ge	ajkgwp.4ge
ajkgzp.4ge	ajkhap.4ge	ajkhqp.4ge	ajkhqq.sql
ajkhqu.x1	ajkhqu.x2	ajkhqu.x3	ajkhqu.x4
ajkhqu.x5	ajkhsp.4ge	ajkhtp.4ge	ajkhtq.sql
ajki0q.sql	ajki1q.sql	ajki2q.sql	ajki3q.sql
ajki4q.sql	ajki5q.sql	ajki6q.sql	ajki7q.sql
ajki8q.sql	ajkiaq.sql	ajkibq.sql	ajkicq.sql
ajkidq.sql	ajkieq.sql	ajkifp.4ge	ajkifq.sql
ajkigp.4ge	ajkigq.sql	ajkihp.4ge	ajkihq.sql
ajkiip.4ge	ajkiiq.sql	ajkiiq1.sql	ajkiiq2.sql
ajkiiq3.sql	ajkijp.4ge	ajkikq.sql	ajkilq.sql
ajkimq.sql	ajkinq.sql	ajkioq.sql	ajkipq.sql
ajkiqq.sql	ajkirq.sql	ajkisq.sql	ajkitq.sql
ajkiuq.sql	ajkivq.sql	ajkiwq.sql	ajkixq.sql
ajkiyq.sql	ajkizq.sql	ajkj7q.sql	ajkj8q.sql
ajkj9q.sql	ajkjep.4ge	ajkjfp.4ge	ajkjhv.sql
ajkjhw.sql			

/tisa/is

ajk624.frm	ajk625.frm	ajk626.frm	ajk627.frm
ajk628.frm	ajk629.frm	ajk630.frm	ajk631.frm
ajk639.frm	ajk640.frm	ajk641.frm	ajk700.frm
ajk701.frm	ajk702.frm	ajk807.frm	ajk808.frm
ajk84p.4ge	ajk876.frm	ajkxbp.4ge	ajkxcp.4ge
ajkxdp.4ge	ajkxep.4ge	ajkxfp.4ge	ajkxkp.4ge
ajkxop.4ge	ajkxwp.4ge		

/tisa/lc

ajk81p.4ge	ajk85p.4ge	ajk861.frm	ajk864.frm
ajk980.frm	ajk983.frm	ajk986.frm	ajk989.frm
ajk992.frm	ajk9cp.4ge	ajk9fp.4ge	

/tisa/pi

ajk7ap.4ge	ajk7au.x1	ajk7bp.4ge	ajk7cp.4ge
ajk7dp.4ge	ajk7ep.4ge	ajk7fp.4ge	ajk7gp.4ge
ajk824.frm	ajk825.frm	ajk826.frm	ajk827.frm
ajk82p.4ge	ajk862.frm	ajk908.frm	

/tisa/pv

ajk900.frm	ajk901.frm	ajk902.frm	ajk903.frm
ajk904.frm	ajk905.frm	ajk906.frm	ajk907.frm
ajk909.frm	ajk910.frm	ajk911.frm	ajk912.frm
ajk913.frm	ajk914.frm	ajk915.frm	ajk916.frm
ajk917.frm	ajk920.frm	ajk921.frm	ajk922.frm
ajk923.frm	ajk924.frm	ajk925.frm	ajk930.frm
ajk931.frm	ajk932.frm	ajk935.frm	ajk936.frm
ajk937.frm	ajk938.frm	ajk939.frm	ajkabp.4ge
ajkacp.4ge	ajkadp.4ge	ajkaep.4ge	ajkagp.4ge
ajkahp.4ge	ajkahu.x01	ajkahu.x02	ajkahu.x03
ajkahu.x04	ajkaip.4ge	ajkajp.4ge	ajkalp.4ge
ajkamp.4ge	ajkanp.4ge	ajkapp.4ge	ajkaqp.4ge
ajkarp.4ge	ajkaup.4ge	ajkaxp.4ge	ajkayp.4ge
pv_comm			

/tisa/rc

ajk703.frm	ajk705.frm	ajk707.frm	ajk708.frm
ajk709.frm	ajk710.frm	ajk711.frm	ajk712.frm
ajk716.frm	ajk721.frm	ajk859.frm	ajk867.frm
ajk868.frm	ajkv1p.4ge	ajkvcp.4ge	ajkvfp.4ge
ajkvgp.4ge	ajkvjp.4ge		

/tisa/ri

ajk5ap.4ge	ajk5np.4ge	ajk5nu.x1	ajk632.frm
ajk633.frm	ajk634.frm	ajk635.frm	ajk636.frm
ajk637.frm	ajk638.frm	ajk654.frm	ajk655.frm
ajk6dp.4ge	ajk6ep.4ge	ajk6gp.4ge	ajk6hp.4ge
ajk6ip.4ge	ajk6jp.4ge	ajk6kp.4ge	ajk6lp.4ge
ajk6qp.4ge	ajk6rp.4ge	ajk6sp.4ge	ajk840.frm
ajk841.frm	ajk842.frm	ajk843.frm	ajk844.frm
ajk845.frm	ajk846.frm	ajk847.frm	ajk848.frm
ajk849.frm	ajk850.frm	ajk851.frm	ajk852.frm
ajk874.frm	ajk875.frm		

/tisa/rq

ajk200.frm	ajk201.frm	ajk202.frm	ajk203.frm
ajk649.frm	ajk650.frm	ajk651.frm	ajk652.frm
ajk665.frm	ajk666.frm	ajk667.frm	ajk668.frm
ajk669.frm	ajk670.frm	ajk671.frm	ajk672.frm
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ajk678.frm	ajk774.frm	ajk775.frm	ajk776.frm
ajk777.frm	ajk778.frm	ajk780.frm	ajk781.frm
ajk782.frm	ajk801.frm	ajk802.frm	ajk803.frm
ajk804.frm	ajk828.frm	ajk829.frm	ajk830.frm
ajk994.frm	ajk996.frm	ajkt2p.4ge	ajkt3p.4ge
ajkt4p.4ge	ajkt5p.4ge	ajkt6p.4ge	ajkt7p.4ge
ajkt8p.4ge	ajktap.4ge	ajktbp.4ge	ajktdp.4ge
ajktep.4ge	ajktkp.4ge	ajktpp.4ge	ajkttp.4ge
ajktwp.4ge			

/tisa/rv

ajk047.frm	ajk048.frm	ajk049.frm	ajk050.frm
ajk051.frm	ajk052.frm	ajk053.frm	ajk054.frm
ajk055.frm	ajk056.frm	ajk057.frm	ajk1rp.4ge
ajk813.frm	ajk832.frm	ajk833.frm	ajk834.frm
ajk837.frm	ajk838.frm	ajk859.frm	ajk990.frm
ajk991.frm	ajk993.frm	ajk995.frm	ajkvsp.4ge
ajkvtp.4ge	ajkvup.4ge	ajkvvp.4ge	ajkvwp.4ge
ajkvxp.4ge	ajkxtp.4ge		

/tisa/su

ajk600.frm	ajk610.frm	ajk611.frm	ajk612.frm
ajk621.frm	ajk642.frm	ajk644.frm	ajk645.frm
ajk646.frm	ajk647.frm	ajk648.frm	ajk653.frm
ajk656.frm	ajk676.frm	ajk683.frm	ajk695.frm
ajk696.frm	ajk706.frm	ajk70u.x1	ajk70u.x2
ajk713.frm	ajk717.frm	ajk722.frm	ajk779.frm
ajk80p.4ge	ajk818.frm	ajk819.frm	ajk820.frm
ajk822.frm	ajk823.frm	ajk831.frm	ajk835.frm
ajk836.frm	ajk860.frm	ajk865.frm	ajk866.frm
ajk92u.x01	ajk988.frm	ajk99p.4ge	ajk9ap.4ge

/tisa/td

bdfarpt.arc	cahrpt.arc	catrpt.arc	cdnrpt.arc
cifrpt.arc	cincrpt.arc	cofrpt.arc	comrpt.arc
crfrpt.arc	cshcrpt.arc	ctlrpt.arc	cxvrpt.arc
dasrpt.arc	dfcdrpt.arc	dfcrpt.arc	dffrpt.arc
dfxrpt.arc	dhfrpt.arc	dhirpt.arc	dhorpt.arc
dpscrpt.arc	dscrpt.arc	h3161rpt.arc	ilhrpt.arc
iuerpt.arc	iuf2rpt.arc	iufrpt.arc	lporpt.arc
lpprpt.arc	mcirpt.arc	mifrpt.arc	mmfrpt.arc
mmrrpt.arc	oefrpt.arc	ohcrpt.arc	oisrpt.arc
prcrpt.arc	pvdsrpt.arc	pvmifrpt.arc	pvorpt.arc
pvrrpt.arc	pvscrpt.arc	pvsirpt.arc	pvurpt.arc
rcfrpt.arc	rchrpt.arc	rclrpt.arc	refrpt.arc
rhcrpt.arc	rhfrpt.arc	rifrpt.arc	rinrpt.arc
risarpt.arc	rsfarpt.arc	sccrpt.arc	sfarpt.arc
sifrpt.arc	t3161rpt.arc	tinrpt.arc	totrpt.arc
trfrpt.arc	vifrpt.arc	vofrpt.arc	vrgcrpt.arc

/dfo/pgms

ajk001.frm	ajk002.frm	ajk003.frm	ajk004.frm
ajk005.frm	ajk007.frm	ajk022.frm	ajk030.frm
ajk031.frm	ajk032.frm	ajk033.frm	ajk041.frm
ajk042.frm	ajk043.frm	ajk044.frm	ajk060.frm
ajk061.frm	ajk062.frm	ajk063.frm	ajk065.frm
ajk098.frm	ajk099.frm	ajk107.frm	ajk135.frm
ajk136.frm	ajk154.frm	ajk172.frm	ajk177.frm
ajk179.frm	ajk180.frm	ajk181.frm	ajk187.frm
ajk188.frm	ajk211.frm	ajk212.frm	ajk214.frm
ajk215.frm	ajk216.frm	ajk228.frm	ajk229.frm
ajk302.frm	ajk303.frm	ajk305.frm	ajk306.frm
ajk307.frm	ajk418.frm	ajk419.frm	ajk420.frm
ajk424.frm	ajk425.frm	ajk426.frm	ajk450.frm
ajk458.frm	ajk459.frm	ajk468.frm	ajk500.frm
ajk501.frm	ajk503.frm	ajk504.frm	ajk536.frm
ajk537.frm	ajk600.frm	ajk601.frm	ajk602.frm
ajk603.frm	ajk604.frm	ajk605.frm	ajk606.frm
ajk607.frm	ajkhrp.4ge	ajkijq.sql	ajkj0p.4ge
ajkj0u	ajkj1p.4ge	ajkj1u	ajkj2p.4ge
ajkj2u	ajkj3p.4ge	ajkj3u.4ge	ajkj4p.4ge
ajkj5p.4ge	ajkj5u.sql	ajkj7p.4ge	ajkj8p.4ge
ajkj9p.4ge	ajkjap.4ge	ajkjau.sql	ajkjbp.4ge
ajkjbu	ajkjcp.4ge	ajkjcu	ajkjdp.4ge
ajkjdu	ajkjeu.sql	ajkjfu.sql	ajkjgu.sql

ajkjhu.sql	ajkkkk	ajkknp.4ge	ajkkop.4ge
ajkkzu.sql	ajkpop.4ge	ajkplp.4ge	

/dfo/pgms/headct

ajk009.frm	ajk010.frm	ajk011.frm	ajk012.frm
ajk013.frm	ajk014.frm	ajk015.frm	ajk016.frm
ajk017.frm	ajk018.frm	ajk019.frm	ajk020.frm
ajk021.frm	ajk026.frm	ajk028.frm	ajk029.frm
ajk034.frm	ajk035.frm	ajk198.frm	ajkb1p.4ge
ajkb2p.4ge	ajkb3p.4ge	ajkb4p.4ge	ajkb5p.4ge
ajkc1p.4ge	ajkc2p.4ge	ajkd2p.4ge	ajkd3p.4ge
ajkd5p.4ge	ajkd6p.4ge	ajkd7p.4ge	ajke1p.4ge
ajke2p.4ge	ajke3p.4ge		

/dfo/pgms/inquiry

ajk361.frm	ajk362.frm	ajk431.frm	ajk484.frm
ajk487.frm	ajk490.frm	ajk493.frm	ajk496.frm
ajk499.frm	ajk502.frm	ajk505.frm	ajk506.frm
ajk507.frm	ajk508.frm	ajk509.frm	ajk510.frm
ajk511.frm	ajk512.frm	ajk513.frm	ajk514.frm
ajk516.frm	ajk521.frm	ajk527.frm	ajk528.frm
ajk530.frm	ajk532.frm	ajk533.frm	ajk535.frm
ajkn4p.4ge	ajko1p.4ge	ajko4p.4ge	ajko9p.4ge
ajkobp.4ge	ajkocp.4ge	ajkoep.4ge	ajkogp.4ge
ajkohp.4ge	ajkolp.4ge	ajkomp.4ge	ajkoop.4ge
ajkopp.4ge	ajkoqp.4ge	ajkozp.4ge	ajkpcp.4ge
ajkpep.4ge	ajkphp.4ge	ajkpkp.4ge	

/dfo/pgms/inv

ajk407.frm	ajk432.frm	ajk433.frm	ajk437.frm
ajk443.frm	ajk447.frm	ajk454.frm	ajk461.frm
ajk462.frm	ajk463.frm	ajk464.frm	ajk465.frm
ajk466.frm	ajk467.frm	ajk469.frm	ajk471.frm
ajk473.frm	ajk474.frm	ajk475.frm	ajk476.frm
ajk477.frm	ajk478.frm	ajk479.frm	ajk480.frm
ajk481.frm	ajk482a.frm	ajk482b.frm	ajk482c.frm
ajk482d.frm	ajk483a.frm	ajk483b.frm	ajk483c.frm
ajk483d.frm	ajkn1u	ajkn2p.4ge	ajkn2u
ajkn3p.4ge	ajkn3u	ajkn4u	ajkn5u
ajkn6u	ajkn6u.sql	ajknap.4ge	ajknbp.4ge

ajkncp.4ge	ajknfp.4ge	ajkngp.4ge	ajknjp.4ge
ajknwp.4ge			

/dfo/pgms/prodsch

ajk369.frm	ajk402.frm	ajk403.frm	ajk404.frm
ajk405.frm	ajk406.frm	ajk411.frm	ajk414.frm
ajk415.frm	ajk416.frm	ajk417.frm	ajk421.frm
ajkjmp.4ge	ajklcp.4ge	ajkldp.4ge	ajklqp.4ge
ajklwp.4ge	ajklxp.4ge	ajkmsp.4ge	ajkmvp.4ge
ajkmyp.4ge	ajkmzp.4ge		

/dfo/pgms/purge

ajk006.frm	ajk008.frm	ajk040.frm	ajk127.frm
ajk128.frm	ajk129.frm	ajk130.frm	ajk131.frm
ajk132.frm	ajk133.frm	ajk148.frm	ajk149.frm
ajk152.frm	ajk159.frm	ajk182.frm	ajk183.frm
ajk192.frm	ajk193.frm	ajk194.frm	ajk195.frm
ajk196.frm	ajk197.frm	ajk217.frm	ajk218.frm
ajk219.frm	ajk220.frm	ajk221.frm	ajk222.frm
ajk223.frm	ajk224.frm	ajkc3p.4ge	ajkh0p.4ge
ajkh1p.4ge	ajkh2p.4ge	ajkh3p.4ge	ajkh4p.4ge
ajkh6p.4ge	ajkj6p.4ge	ajkk1u	ajkk1u.sql
ajkk2u	ajkk2u.sql	ajkk3u	ajkk3u.sql
ajkk4u	ajkk4u.sql	ajkk5u	ajkk5u.sql
ajkk6u	ajkk6u.sql	ajkk7u	ajkk7u.sql
ajkk8u	ajkk8u.sql	ajkk8u.x1	ajkk8u2.sql
ajkk9u	ajkk9u.sql	ajkkau	ajkkau.sql
ajkkau.x1	ajkkau2.sql	ajkkbu	ajkkbu.sql
ajkkcu	ajkkcu.sql	ajkkcu.x1	ajkkcu2.sql
ajkkdu	ajkkdu.sql	ajkkeu	ajkkeu.sql
ajkkfu	ajkkgu	ajkkgu.sql	ajkkgu.x1
ajkkgu2.sql	ajkkhu	ajkkhu.sql	ajkkhu.x1
ajkkiu.sql			

/dfo/pgms/ratiss

ajk363.frm	ajk367.frm	ajk370.frm	ajk371.frm
ajk381.frm	ajk382.frm	ajk383.frm	ajk384.frm
ajk385.frm	ajk385a.frm	ajk386.frm	ajk386a.frm
ajk387.frm	ajk387a.frm	ajk388.frm	ajk389.frm

ajk391.frm	ajkjgp.4ge	ajkjhp.4ge	ajkjqp.4ge
ajkjsp.4ge	ajkjtp.4ge	ajkjup.4ge	ajkkcp.4ge
ajkkdp.4ge	ajkkep.4ge	ajkkfp.4ge	ajkkip.4ge
ajkklp.4ge	ajkkmp.4ge		

/work/acct/afmis/bin/dbadmin/sql directory:

- CHKTABLE.sql. The sql that contains a "check table" statement for each table in the current version of the TISA/IFA database structure. This sql is used by the SA when it is suspected that multiple, unknown tables are corrupted because of a power failure, computer crash, or other abnormal INFORMIX program stoppage. The statement for a given table(s) may be extracted and placed in a separate sql file to check specific tables only. The INFORMIX-SQL "check table" statement uses the bcheck utility with the -n option distributed with the INFORMIX software. This utility compares the index file against the data file for a database table to determine if the two are consistent. It reports statistics about indexes and data records, as well as, any errors that were detected. The -n option instructs the bcheck utility to report but not repair any errors that were found.

- GRANT.sql. The sql that is run to grant users' permissions to the TISA/IFA database. This sql is periodically changed by the SA when users are added to or removed from TISA/IFA access. This sql is used by software change package (SCP) and interim change package (ICP) load packages and must be kept current.

- LOG.sql. The sql that establishes the name and location of the transaction log file and "attaches" the transaction log to the databases. This sql is used in rebuilding the TISA/IFA/DFO database and is referenced in the README file found in the $HOME/bin/dbadmin directory.

- REPAIR.sql. The sql that contains a "repair table" statement for each table in the current version of the TISA/IFA database structure. This sql is used by the SA when the CHKTABLE.sql above reports corruption in the indexes on all TISA/IFA database tables. The statement for a given table(s) may be extracted and placed in a separate sql file to repair specific tables only. The INFORMIX-SQL "repair table" statement uses the bcheck utility (with the -y option) distributed with the INFORMIX software. This utility compares the index file against the data file for a database table to see if the two are consistent. It reports statistics about indexes and data records, as well as any errors detected. The -y option instructs the bcheck utility to automatically repair any errors found.

- REVOKE.sql. The sql that is run to revoke users' permissions from the databases. This sql is periodically changed by the SA when users are added or removed

from TISA/IFA/DFO access. This sql is used by SCP and ICP load packages and must be kept current.

- SCP?IDX.sql. The sql that contains the statements to create all indexes against the current version of the TISA/IFA database. It is used in rebuilding the TISA/IFA database and referenced in the README file located in the $HOME/bin/dbadmin directory. The statements to create the index(es) against a table may be extracted and placed in a separate sql file for use in rebuilding a single table.

- DFO?IDX.sql. The sql that contains the statements to create all indexes against the current version of the DFO database. It is used in rebuilding the DFO database. The statements to create the index(es) against a table may be extracted and placed in a separate sql file for use in rebuilding a single table.

- DROPIDX.sql. The sql that contains the statements to drop all indexes in the current version of the TISA/IFA database. The statements to drop the index(es) against a given table may be extracted and placed in a separate sql file for use in rebuilding the index(es) for a single table.

- RECLUSTER.sql. The sql to recluster all TISA clustered indexes. This sql can be used to improve system performance when clustered indexes have degenerated.

- **/work/acct/afmis/bin/util directory:**

  - budbc. UNIX shell script that "unloads" the data in the TISA/IFA database into UNIX flat files and places them in the designated disk backup file system. This script uses the "bur2" UNIX shell script.

  - clean_afmis. UNIX shell script that prints and removes the error log files from the TISA/IFA executable directories; provides the capability to remove aged disk back-ups, packs the most current disk back-up made, and provides the capability to purge the TISA/IFA database transaction log file. This script uses the following UNIX scripts:

95p_err_prt	asreq_err_prt
bpa_err_prt	dh_err_prt
dv_err_prt	eod_err_prt
eom_err_prt	err_log_prt
fa_err_prt	fm_err_prt
ia_err_prt	is_err_prt
lc_err_prt	pi_err_prt
rc_err_prt	ri_err_prt
rq_err_prt	rv_err_prt
del_lines	trname.sql

- **/work/acct/afmis/bin/menus directory:**

  - ifa. UNIX shell script that initiates the IFA Command Menu INFORMIX program. A statement to initiate this script is placed in the .profile file of all IFA users.

  - menu.x1. UNIX shell script that prompts user for either the TISA Conversion Command Menu or the TISA Production Command Menu, and initiates the appropriate command menu INFORMIX program. A statement to initiate this script is placed in the .profile file of all TISA conversion users. This statement will be replaced after the conversion effort has been completed.

  - tisa. UNIX shell script that initiates the TISA Command Menu INFORMIX program. A statement to initiate this script is placed in the .profile file of all
TISA users.

  - tisabt. UNIX shell script that initiates the TISA Batch Command Menu INFORMIX program. A statement to initiate this script may be placed in the .profile file of any special login which is created for the expressed purpose of running the TISA Batch processes. It may be initiated from the command line by the operator(s) designated to run the TISA Batch processes.

  - tisawh. UNIX shell script that initiates the TISA-Warehouse Command Menu INFORMIX program. A statement to initiate this script is placed in the .profile file of all TISA-Warehouse users.

  - menu.x2. UNIX shell script used by TISA users to select printers.

  - dfo.x01 UNIX shell script that initiates the TISA-Warehouse Command Menu INFORMIX program. A statement to initiate this script is placed in the .profile file of all TISA-Warehouse users.

  - all.x01 UNIX shell script that initiates the TISA-Warehouse Command Menu INFORMIX program. A statement to initiate this script is placed in the .profile file of all TISA-Warehouse users.

  - sa.x01 UNIX shell script that initiates the TISA-Warehouse Command Menu INFORMIX program. A statement to initiate this script is placed in the .profile file of all TISA-Warehouse users.

  - tisa_ifa.x01UNIX shell script that initiates the TISA-Warehouse Command

6.2 Customize Users for System

The AFMIS consists of TISA, DFO, IFA, TISA-Warehouse, and SA (system administration) users. These various types of users must be added to the system through SCO admin. The user work environment will be set up according to the .profile file in their home directory.

The contents of this file establish the user environment to suit the specific processing needs with environment variables. The environmental variables (See Figure 6.2-1) control access to the application software executables (AFMIS), the application database (DBDIR, DBPATH), and specify where the INFORMIX software resides (INFORMIXDIR). These variables designate

the printer destination of all Reports and Error Logs (DBPRINT, LPDEST) produced by the application software, identify the correct terminal emulation and location of the files that control terminal behavior (TERM, TERMCAP), and specify where the database Transaction Log and application software utilities reside (TRLOG, UTDIR) on the system. There are six specific types of logins required to use the TISA/IFA and DFO application software. These are "informix", "afmis", login ID for TISA, IFA, EOD and DFO users.
(See Figure 6.2-1 - 6.2-5) for example of profiles and explanation of settings.

```
set -a                                  #       EXPORT VARIABLES
                                        #
stty erase '^h" echoe                   #       SETS CONTROL-H AS BACKSPACE
                                        #          CHARACTER
                                        #
umask 0000                              #       SETS THE FILE-CREATION MODE MASK TO
                                        #          777 (READ, WRITE, AND EXECUTE)
                                        #          FOR USER, GROUP, AND OTHER FOR
                                        #          ALL NEW FILES CREATED BY A USER
                                        #
AFMIS=/informix/tisa                    #       SPECIFIES THE LOCATION OF THE TISA/IFA
                                        #          EXECUTABLE DIRECTORIES
COMDIR=/usr/spool/uucppublic            #       SPECIFIES THE DIRECTORY USED TO
                                        #          TRANSFER DATA BETWEEN DFO AND
                                        #          TISA/IFA
                                        #
DBDIR=/informix /tisa                   #       SPECIFIES THE LOCATION OF THE TISA/IFA
                                        #          DATABASE
                                        #
DBPATH=/informix /tisa:/dfo/afmis       #       SPECIFIES THE LOCATION OF THE TISA:DFO
                                        #          DATABASES TO BE USED BY
                                        #          INFORMIX-SQL
                                        #
DBPRINT="lp -s -hspl"                   #       SPECIFIES THE PRINTER/PRINT COMMAND
                                        #          TO BE USED BY 4GL
                                        #
DBTEMP=/tmp                             #       SPECIFIES THE LOCATION OF TEMPORARY
                                        #          FILES GENERATED BY INFORMIX-SQL
                                        #
DFO=/informix /dfo/pgms                 #       SPECIFIES THE LOCATION OF THE DFO
                                        #          EXECUTABLE DIRECTORIES
                                        #
DFODBDIR=/informix /dfo/afmis           #       SPECIFIES THE LOCATION OF THE DFO
                                        #          DATABASE
                                        #
INFORMIXDIR=/home/informix/programs; export INFORMIXDIR     #      SPECIFIES THE
                                        #                        LOCATION OF PROGRAM
                                        #          FILES IN "RUN-TIME" INFORMIX-SQL
```

```
                                #
LPDEST=hsp1                     #       SPECIFIES THE DEFAULT PRINTER TO BE
                                #          USED WHEN EXECUTING UNIX PRINT
                                #          COMMANDS
                                #
PATH=${INFORMIXDIR}/bin:${DBPATH}:${AFMIS}:/ usr/bin:/bin:.:/usr/ucb:etc
                                #       SPECIFIES THE ORDER OF THE
                                #          DIRECTORIES TO BE SEARCHED WHEN
                                #           EXECUTING COMMANDS OR PROGRAMS
                                #
PS1="user"                      #       SPECIFIES THE PRIMARY LOGIN PROMPT
                                #
PS2="continued "                #       SPECIFIES THE SECONDARY LOGIN PROMPT
                                #
TAPEDEV=/dev/rmt/c0s0           #       SPECIFIES THE 9-TRACK TAPE DRIVE TO BE
                                #          USED BY THE AFMIS PROGRAMS
                                #
TERM=605                        #       SPECIFIES THE TERMINAL EMULATION TO
                                #          BE USED FOR LOGIN SESSIONS
                                #
TERMCAP=/etc/termcap            #       SPECIFIES THE LOCATION OF THE
                                #          TERMCAP FILE TO BE USED
                                #
TERMINFO=/usr/lib/terminfo      #       SPECIFIES ADDITIONAL TERM FILES USED
                                #          BY INFORMIX
                                #
TISA=/informix /tisa            #       SPECIFIES THE LOCATION OF THE TISA/IFA
                                #
TRLOG=/informix /trlog/tisa/trlog #     SPECIFIES THE LOCATION OF THE
                                #          TRANSACTION LOG FOR THE TISA/IFA
                                #          DATABASE
UTDIR=${TISA}/su                #       SPECIFIES THE LOCATION OF THE TISA/IFA
                                #          SYSTEM UTILITIES EXECUTABLE
                                #          DIRECTORY
                                #
#/work/acct/afmis/bin/menus/tisa #      MENU USED TO RUN THE TISA SUBSYSTEM
#/work/acct/afmis/bin/menus/tisawh #    MENU USED TO RUN THE TISA-W
#                                       SUBSYSTEM
#/work/acct/afmis/bin/menus/IFA  #      MENU USED TO RUN THE IFA SUBSYSTEM
#/work/acct/afmis/bin/menus/menu.x1  #  MENU USED TO RUN TISA CONVERSION

exit                            #       USED TO TERMINATE THE USER LOGIN
                                #          SESSION THE USER TERMINATES
                                #          PROCESSING
```

FIGURE 6.2-1 - Explanation of Variables in a .profile (CONT)

```
####afmis .profile

. /work/acct/afmis/bin/menus/all.x01
. /work/acct/afmis/bin/menus/tisa_ifa.x01
. /work/acct/afmis/bin/menus/sa.x01
set -a
PVWRK=$HOME/pvwrk
export PVWRK
DBEDIT=vi
DBPRINT="lp -s -c -dhsp1"
LPDEST=hsp1
TAPEDEV=/dev/rmt/c0s0                    #  SERVER 4 mm dat tape drive
OSEXEC=/osexec
ODSFILE=AFMIS044019CT
ODSIPADR=160.137.64.100
ODSDEST=/ddbe3/ftp/prd/ssf/
export DBPRINT LPDEST TAPEDEV ODSFILE ODSIPADR ODSDEST
```

FIGURE 6.2-2 - afmis .profile

```
###   dfo user   .profile

. /work/acct/afmis/bin/menus/all.x01
. /work/acct/afmis/bin/menus/dfo.x01
set -a
DBPRINT="lp -s -dLexprt"
LPDEST=Lexprt
/work/acct/dfosa/bin/dfo              #  Allows access for DFO users
exit
```

FIGURE 6.2-3 - dfo user .profile

```
### ifa .profile

. /work/acct/afmis/bin/menus/all.x01
. /work/acct/afmis/bin/menus/tisa_ifa.x01
### ifa .profile
set -a

DBPRINT="lp -s -dLexprt"
LPDEST=Lexprt
/work/acct/afmis/bin/menus/ifa          # Allows access to IFA subsystem
```

FIGURE 6.2-4 - ifa .profile

```
###  TISA .profile

. /work/acct/afmis/bin/menus/all.x01
. /work/acct/afmis/bin/menus/tisa_ifa.x01
### tisa .profile
set -a
PVO_CHNK_SZ=35

DBPRINT="lp -s -dLexprt"
LPDEST=Lexprt
/work/acct/afmis/bin/menus/prime TISA     #  for a TISA Subsystem
user

exit
```

FIGURE 6.2-5 - TISA .profile

```
###  EOD .profile

. /work/acct/afmis/bin/menus/all.x01
. /work/acct/afmis/bin/menus/tisa_ifa.x01
. /work/acct/afmis/bin/menus/sa.x01
e
set -a
export TISAUTL
DBPRINT="lp -s -c -dhsp1"
LPDEST=hsp1
CDPATH=:$HOME
UNIFY=/usr/ASQL/lib
# VARIABLES FOR DDN IMPLEMENTATION
OSEXEC=/osexec
```

```
DAASHOME=/work/acct/daaso
cd $TISA/bt
if [ -f AJK4PP.4GE ]
  then
    rm -f ajk4pp.4ge
     mv AJK4PP.4GE ajk4pp.4ge
      chmod 755 ajk4pp.4ge
      chown afmis ajk4pp.4ge
fi
cd $TISA/su
ajk92u.x01
exit
```

FIGURE 6.2-6 - EOD .profile

6.3 The Visual Editor (vi)

The visual editor or "vi" for UNIX systems may be used by the SA to interactively change standard regular files. The "vi" command is primarily used for the creation and modification of shell scripts and SQL statements to help in system back-ups, restoration, maintenance, and problem resolution. When invoked, changes made to the file are reflected by what is displayed on the terminal screen. In order to use "vi" effectively, the SA must be aware of the types of files that may be modified by invoking the applicable system command(s) that provide detailed information on each file. The following are a few available commands that provide information on files:

"ls" - Displays to terminal screen the names of files within a specific directory.

ls -1" - Displays to terminal screen a long list of the files within a directory. Provides information concerning ownership, file size, access permissions, and the date/time of last modification.

The basic method of creating a file consists of entering the "vi" command at prompt with the name of file you wish to create, as the following example illustrates:

afmis> vi file1

Figure 6.3-1 is a list, by category, of the most widely used commands for "vi".

ADD/INSERT

a - add after the cursor; will not overwrite any data on a line; <ESC> to quit

i - insert before the cursor; will not overwrite any data on a line; <ESC> to quit

CURSOR MOVEMENT

h - move cursor to the left on a line

j - move cursor down one line

k - move cursor up one line

l - move cursor to the right on a line

FIGURE 6.3-1 - VI Editor Command Reference Card

CURSOR MOVEMENT (CONT)

^d - move cursor one half page down

^u - move cursor one half page up

^f - move cursor one page forward (down)

^b - move cursor one page backwards (up)

w - move forward from one word to another on a line

e - move forward to the end of the word where the cursor sits

b - move backwards from one word to another on a line

CHANGE/DELETE

cw - change one word: position cursor over word and type in command; <ESC> to quit

dw - delete one word; position cursor over word and type in command

r - replace/change one character in a line

R - replace/change one or more characters in a line; <ESC> to quit

C - change entire line; <ESC> to quit

x - delete one character in a line

^ - control key (Ctrl) used in combination with the command letter

OPEN/JOIN/YANK/PUT

dd - delete one line in a file

D - delete from cursor to the end of the line

o - open a line below the cursor; <ESC> to quit

O - open a line above the cursor; <ESC> to quit

FIGURE 6.3-1 - VI Editor Command Reference Card (CONT)

OPEN/JOIN/YANK/PUT (CONT)

J - connect the line below the cursor with the line of which the cursor is located

yy - "yank" (put in temporary storage) one line to be placed elsewhere in the file

p - "put" a line that has been "yanked" or "deleted" after the cursor

P - "put" a line that has been "yanked" or "deleted" before the cursor

NOTE: The "put" command will also work with the "dw" and the "D" commands.

UNDO

u - "undo" or reverse the last command that was performed

U - "undo" or reverse the set of commands performed on a particular line

NOTE: This is the most important and useful command you will use, however, it will ONLY work on the last command or set of commands for a particular line entered while in "vi".

OTHER COMMANDS

$ - go to the end of the line that the cursor is on

:$ - go to the end of the file (last line in the file/buffer)

. - repeat the last command entered

:q - quit the current "vi" session if no changes have been made to the file

:q! - quit "vi" and do not write any changes to the file

:x1 - where "x1" stands for the line number where the cursor is to be moved

:n - go to the next file to be edited (used when modifying multiple files)

^g - display the line number on which the cursor is sitting

/ - search the file for the information matching what was typed after the "/" key

n - go to the next occurrence of the matching criteria (used with the "/" in "vi")

OTHER COMMANDS (CONT)

:w! - over-write the file, but do not "quit" the editor if the file exists

:w - write the file, but do not quit the editor

:wq - write the file and quit (exit) the editor

ZZ - save the file and return to the command line (exit "vi)

ESC - terminate input

:set number - sequentially numbers the lines in a file; will not update the file with the numbers when file is saved

:set nonumber - terminate the display of sequentially numbered lines in a file

:g/x1/s//x2/g	-	globally change x1 to x2 for the entire file; where "x1" is the value to be removed and "x2" is the replacement value
:!sh	-	create a sub-shell while still in "vi"
:set all	-	will display the option settings being used while in "vi"
:set showmode	-	will display the entry mode in the lower right corner of the terminal screen
:set noshowmode	-	will terminate the display of the entry mode

Once entry or modification to a file has been completed, input should be terminated. This may be accomplished by pressing the ESC key located at the top, left hand corner of the keyboard. The file should now be saved for further editing or additions which may be accomplished by the Save and Exit Option (press the "SHIFT" key and enter the letter "Z" twice) or by the Save and Continue Option (press the colon ":" key, enter the letter "w", then, press <RETURN>). When you save a file, a line of information appears at the bottom of screen displaying the name of file being saved and the number of lines and characters in file.

:wq

The "vi" editor has several unique features that allow flexible and friendly file modifications. The "read" option of "vi" allows the addition of text, data, or shell script code from one named file to another. The SA must first open the file that will be modified through "vi" and, then, position the cursor on the line above where the additional information will be placed. Next, press the colon ":" key and enter the letter "r"; a space and name of file containing the information to be added; and press key, as the following example illustrates:

:r file2 <RETURN>

The "write" option of "vi" allows the SA to copy information from one named file to another and used in conjunction with the "read" option. First, open the file through "vi" and position cursor on the beginning line of information to be extracted from the file. Press the "CTRL" key (located on the far left of your keyboard) and the letter "g" at the same time. This displays the line number (which should be noted) at the bottom of the terminal screen, as seen below:

"file1" [Modified] line xxx of xxx - -xx%- -

Next, press the key until you reach the last line of information to be extracted from the file and perform the procedure to obtain the number of the last line. Press the colon ":" key and enter beginning line number; a comma "," and ending line number; a space and the letter "w"; an exclamation point "!" and name of the file that information will be written to; as the following example illustrates:

xxx,xx w! file2

The "vi" editor has a wide range of commands that provides the SA with the many capabilities; such as, enter text, data, shell script code, and SQL statements; provide a flexible method of movement through a file, change or delete the contents of a file; move segments of text, data, or code in a file; reverse the last change or set of changes made in a file; and many other useful commands that help create or modify a file. Usually, the commands are one alphabetic letter in length. However, a few commands require using the "SHIFT" or "CTRL" key to perform the desired command. The SA should also be aware of the following special function keys. The colon ":" key is used mainly as an editing tool. The back-slash "/" key is used to search for a pattern of characters in a file that help in a variety of editor tasks. The SA is encouraged to use system documentation and other useful manuals or publications to obtain a detailed understanding of "vi", as this is a tool used to perform the majority of system maintenance tasks.

7. SYSTEM BACK-UPS AND RECOVERY

7.1 System Back-ups

System back-ups are an integral part of any automatic data processing (ADP) environment. Thus, the strongest defense against lost data is to keep good back-ups and to understand the procedures for restoring a file(s) or an entire file system. There are several types/kinds of back-ups that should be performed on a regular and fixed schedule that will minimize system downtime.

- Types of Back-up. In most ADP environments, there are two types of back-up; full and incremental. A full-system back-up will back-up all the file systems at the time it is executed. An incremental back-up records only those files that have changed within the listed time period, such as the last 24 hours.

- Full System Back-up. Full system back-up should be executed, periodically. For a full system back-up of all UNIX system files, perform the following tasks:

  - Login as root.

  - Open a terminal window.

  - Insert a 4mm Dat tape

  - Type ./Fullsys (upon completion, label tape "AFMIS Full System Backup" write date and block number(s) on label.

  - Close Terminal window.

- Incremental Back-ups. The incremental back-ups in the AFMIS environment are daily, weekly, and monthly.

- Daily Back-ups. Daily system back-ups should be accomplished by the SA to capture files that have changed within the past 24 hours. The daily back-up should be run at the same time(s) during the day to assure all data is captured. The SA can invoke the process directly from the command line. This can be done during the EOD process. However, you must ensure that no one is logged-on the system, and you are logged-in as "root".

In order to perform a daily back-up, the AFMIS SA must:

- Make sure no user is on the system.
- Login as root.
- Open a Terminal Window.
- Insert a tape into the tape drive.
- Type /osexec/sysbkp or cd /osexec; . / daily.

The following menu should be displayed:

MENU FOR BACKUP

D DAILY
W WEEKLY
M MONTHLY
X EXIT

OPTION:

Enter D for Daily.

SELECT BACKUP DRIVE

1 4 mm Dat Tape Drive
X EXIT DAILY BACKUP

OPTION:

Enter 1 for tape drive or X to Exit.

If your daily back-up needs more than one tape, it will display "end of media type device file name" on your terminal. The SA should type the device file name of the drive selected at the beginning of this run. For cartridge tape drive type /dev/rmt/c0s0.

- Weekly Back-ups. Weekly system back-ups should be accomplished by the SA to capture the following file systems: /osexec, /informix, and /work. The weekly back-up should be run on the same day of each week to assure all data is captured. To run weekly back-ups, perform the following tasks:

  - Ensure that no user is on the system.
  - Login as root.
  - Open a Terminal Window.
  - Type ./osexec/sysbkp or cd /osexec; ./weekly
  - Enter "w" for weekly back-ups.
  - Enter the number for the appropriate tape drive.

- Monthly Back-ups. A monthly system back-up should be performed by the SA to capture an image of the "root" (/) file system. The monthly back-up should be performed near the end of the month and on the same day of each month. This can be done during the EOD process. However, you must ensure that no user is logged on the system, and that you login as "root". It is recommended the monthly back-up is not run on the same day as EOD/EOM.

  To run the monthly back-ups, perform the following tasks:

  - Ensure that no user is on the system.
  - Login as root.
  - Open a Terminal Window.
  - Type /osexec/sysbkp or cd /osexec; ./monthly.
  - Enter "m" for monthly back-ups.
  - Enter the number for the appropriate tape drive.

- Database Back-ups. AFMIS application software provides several types of back-ups. The UNIX shell script 'budbc' will back-up the TISA database tables and place them in "/informix/backup". This script should be executed on a daily basis prior to running EOD. This means that all tables affected during the day, plus tables unaffected during the day will be backed-up. You should ensure that no user is logged on the system. Usually, this script is run once a day, but can be run more than once a day. The budbc script may be executed. You may use budbc before CAO

does anything to the database as this provides a source to restore your database. To run budbc, perform the following tasks:

- Ensure that no user is logged on the system.
- Login as afmis.
- Open a Terminal Window.
- cd /work/acct/afmis/bin/util
- Type budbc a. The "a" represents the first run for that day. If the SA has to make another budbc run, to type budbc b. The back-up of the tables needs the following format:

  [table name]P[julian day]a.z, for example, mifP018a.z

mif	-	table name
P	-	production
018	-	julian day, 18th day of the year
a	-	first run for that day
.z	-	pack the file.

  See Figure 7.1-1 for the data layout in the file.

```
8920007535776|BREAD WHITE|LB|0.4272|19.444|E|0.4272|10/01/1993|19.444|0.0|
8920007535779|BREAD WHOLE WHEAT|LB|0.4272|6.263|E|0.4272|10/01/1993|6.263|0.0|
8910005846435|MILK HOMOGENIZED|GL|1.6447|2.238|E|1.6447|07/01/1993|25.0|0.0|
8910001516497|MILK LOWFAT|GL|1.5702|22.762|E|1.5702|07/01/1993|12.5|0.0|
8920007535768|ROLLS HAMBURGER|LB|0.5488|11.794|E|0.5488|10/01/1993|11.794|0.0|
```

FIGURE 7.1-1 - Layout of Data (UNLOADED Format)

- EOD/EOM Back-up. During the EOD process, the DFO and TISA databases are backed-up. The End-of-Day Part I backs-up the TISA, TISA-W, and IFA database. The back-up files are created in the '/informix/backup/tisa' directory. The DFO database is backed-up during the DFO End-of-Day process. These files are created in '/informix/backup/dfo' directory. The databases are backed-up to tape the next day by the SA by executing the following instructions:
  - Login as afmis <RETURN>
  - Type cd /work/acct/afmis/bin <RETURN>
  - Type. /ajk71u.x01<RETURN>

Note: End-of-Day menu will vary depending on whether you are a Standard dining facility user or an AHC user.

- For a standard dinning facility user, choose the options you wish:

  EOD OF DAY BACKUP

  A Backup AHC End-of-Day
  D Back-up DFO End-of-Day
  T Back-up TISA End-of-Day
  B Back-up TISA and DFO End-of-Day
  X Exit

- For an AHC dinning facility user, choose the options you wish:

  EOD OF DAY BACKUP

  A Backup AHC End-of-Day
  D Back-up DFO End-of-Day
  T Back-up TISA End-of-Day
  B Back-up AHC, TISA and DFO End-of-Day
  X Exit

  After a successful execution of ajk71u.x01 the 'informix/backup/dfo' and informix'/backup/tisa' directories are cleaned.

7.2 File Recovery

During the course of normal operations, the SA may be required to recover missing or corrupted files, directories, and/or entire file systems from the system back-ups. It is imperative the source of the problem that resulted in a lost file or damaged file system be determined before a recovery procedure is implemented. The methodology of analyzing and resolving problems will be discussed in Section ??. The SA must determine what files are to be recovered from back-up media. When the directories, file(s), or file system(s) have been identified, the SA must restore the missing items in the same manner that the back-up was created. It is imperative that you have a good back-up. The following represent some of the most frequently used recovery procedures:

- Individual Recovery. In order to recover individual files or directories from the back-up media, the SA first determines when the file was lost or damaged. The SA should retrieve the most current back-up media from the tape library that contains the file or directory and place the media in the appropriate machine device on the Unix Server. Normally, a temporary directory is created to hold the file or directory read from the tape media. After the file or directory has been loaded to the temporary directory, the SA should check to be sure that no corruption or damage exists

before the file/directory is restored to the proper address. If the SA performed the back-up using shell scripts, then the "restore" procedure will have to be executed using a similar command from the command line. It is the responsibility of the SA to double-check all files and directories to verify that system integrity has not been compromised during execution of the recovery procedure. The following command can be used to recover a single file (**ensure you are in the root directory**):

cpio -icvBdum [‘path to file’] < /dev/rmt/c0s0
i.e. cpio –icvBdum ‘work/acct/afmis/user.txt’ < /dev/rmt/c0s0

- File System Recovery. The recovery procedures used to restore individual files or directories may also be used to recover entire file systems if corruption or damage is detected during normal system operations. The SA should be aware that file systems often require large amounts of system space. Careful consideration should go into planning when and how a file system will be restored, before a specific recovery procedure is executed. The SA should make sure, before and after the file system has been restored, that no corruption exists that could hinder system performance and integrity.

  To restore a file system, it must be determined that it is corrupted. Follow these steps to restore all the files in a file system (**ensure you are in the root directory)**:

  - Login as root.
  - Mount the latest tape with the file system, for example, weekly has /osexec, /work, and /informix
  - cpio -icvBdum [file system] < /dev/rmt/c0s0
  - Total System Recovery. If a catastrophic system event causes a crucial hardware or operating system malfunction, the SA may be required to recover the entire system or large parts of the system from back-up media. After repairing the malfunction, the SA should follow the procedures for reloading the OS, see Appendix B. At this point, the SA should determine what needs to be restored, and follow procedures from the Individual or File System Recovery Sections of this manual. The SA is responsible that the most current versions of the back-ups are used, and verifying the files or file systems are not damaged or corrupted, before and after restoration has been executed.

- System Crash Recovery. When a system stops operating due to a power fluctuation, lack of minimal working space, or other random problems, the effect is in essence a "crash." A "crash" is simply the abrupt and total loss of operations for a brief period of time and usually requires simple recovery procedures to resume processing. The SA should be aware that if a system crashes on a regular basis, there may be a larger problem that could cause permanent loss of hardware and/or software. To recover from a system crash, the first step is to bring the system back to

single- user mode and check the system disks with appropriate command(s). If the crash was severe and the system disk was damaged beyond repair, the SA must call COMPAQ.

7.3 Restoring the TISA/IFA database from back-up

Restoring the database files that were backed-up by ajk71u.x01. If the End-of-Day/End-of-Month function encounters a fatal error during execution, the CAO should be contacted. If necessary, the system administrator may have to restore the database(s) from back-up.

1. Log on the system as "afmis".

2. If back-up is on tape, place contents of tape onto disk using utility program ajk72u.x01 located in $HOME/bin. If back-up is currently on disk in directory $EODBKUP/tisa, skip to STEP 3.

   a. Key enter: cd $HOME/bin/tape <RETURN>

   b. Key enter: ajk72u.x01 <RETURN>

   c. Select option "T" (TISA) from menu displayed. Press <RETURN>

   d. Follow program directions.

   If an error occurs while attempting to place the contents of the tape on disk, contact system support. DO NOT CONTINUE.

3. Key enter: cd /inforrmix/tisa/afmis.dbs <RETURN>

4. Key enter: ls -C <RETURN>

5. Make sure that you are in the directory containing the TISA/IFA database.

6. Key enter: rm * <RETURN>

7. Key enter: cd $EODBKUP/informix/tisa <RETURN>

8. Key enter: ls | cpio -pm /tisa/afmis.dbs <RETURN>

   If an error occurs while copying the database, contact CAO. DO NOT CONTINUE.

9. Key enter: cd /informix/tisa/afmis.dbs <RETURN>

10. Key enter: chgrp informix * <RETURN>

11. Key enter: cp /dev/null $TRLOG/trlog <RETURN>

12. Key enter: ls -1 $TRLOG/trlog <RETURN>

13. Make sure the trlog has no contents (size=0).

14. Key enter: cd $HOME/bin/dbadmin/sql <RETURN>

15. Create the following SQL using "vi" if it does not currently exist:

    {maxrpt.sql}

    SELECT MAX(rpt_num) from rel

16. Key enter: isql afmis maxrpt <RETURN>

17. Record report number retrieved by the SQL on a piece of paper.

18. Key enter: cd $AFMIS/reports <RETURN>

19. Remove all reports with numbers greater than the maximum report number recorded. (Report naming convention is R########## or R######## .Z where "##########" is a number.)

20. Key enter: ls -lt | pg <RETURN>

21. The report number displayed at the top of the list should match the maximum report number recorded. If not, repeat steps 19 through 21.

22. Key enter: cd $HOME/bin/dbadmin/sql <RETURN>

23. Key enter: isql afmis CHKTABLE >> chk.out <RETURN>

24. Ensure there are no database errors. Repair any errors found. NOTE: You may want to use 'grep -i error chk.out' to detect errors.

7.4 Restoring the DFO database from back-up

1. Log on the system as "afmis".

2. Open a Terminal Window.

2. If back-up is on tape, place contents of tape on disk using utility program ajk72u.x01 located in $HOME/bin. If back-up is currently on disk in directory $EODBKUP/dfo, skip to STEP 3.

   a. Key enter: cd $HOME/bin/tape <RETURN>

   b. Key enter: ajk72u.x01 <RETURN>

   c. Select option "D" (DFO) from menu displayed. Press <RETURN>

   d. Follow program directions.

   If an error occurs while attempting to place the contents of the tape on disk, contact system support. DO NOT CONTINUE.

3. Key enter: chmod 777 $EODBKUP/dfo/* <RETURN>

4. Sign off the system.

5. Sign on as "dfosa".

6. Key enter: cd /informix/dfo/afmis/afmisdb.dbs <RETURN>

7. Key enter: ls -C <RETURN>

8. Make sure that you are in the directory containing the DFO database.

9. Key enter: rm * <RETURN>

10. Key enter: cd $EODBKUP/dfo <RETURN>

11. Key enter: ls | cpio -pm /informix/dfo/afmis/afmisdb.dbs <RETURN>

If an error occurs while copying the database, contact system support. DO NOT CONTINUE.

12. Key enter: cd /informix/dfo/afmis/afmisdb.dbs <RETURN>

13. Key enter: chgrp informix * <RETURN>

14. Key enter: cd /informix/trlog/dfo <RETURN>

15. Key enter: cp /dev/null trans.log <RETURN>

16. Key enter: ls -l trans.log <RETURN>

17. Make sure that the trans.log has no contents (size=0).

18. Check all database tables for corruption. Repair any errors found.

7.5 Restoring TISA Database Files/Tables from Hard Disk

The TISA/IFA database files/tables are backed-up by budbc script and End-of-Day Part I. Budbc places the back-ups on disk in /informix/backup, as an unloaded flat file (Figure 7.1-1). To restore from the budbc back up, the file/table, in question, must be dropped from the database. Next, the file/table must be created and the data loaded from /informix/backup/[table name]. Finally, the indexes of the file/table must be created. The procedure for each of the steps is located in the INFORMIX/SQL Section 5.

Caution must be used when restoring specific tables. Some tables contain data directly related to data on other tables. It may be dangerous to restore a single table without restoring other tables that have data links. CAO should be consulted before attempting this process.

8. BATCH PROCESS FOR AFMIS

8.1 Special TISA/IFA Operation Requirements

The AFMIS system application software has special requirements that should be performed on a regular basis.

8.1.1 TISA/IFA Batch Operation Requirements

All special processing for the TISA/IFA will be involved through the TISA Batch Command Menu. The As Required selection from this menu is the major part of the batch jobs (Figure 8.1-1).

The menu can also be accessed through from the TISA Menu System. To enter the TISA Batch Process Command, the SA can type at the afmis> prompt

afmis> cd /informix/tisa
afmis> tisa

PURPOSE: Use this menu to choose the TISA Batch Menu option

HOW TO USE THIS SCREEN: Enter the desired option code.

RESULT:

If Option B is selected, the TISA Batch As Required Command Menu (AJK-600) is displayed. This option is the most used by the SA.

```
TISA:  Stock  Financial  Maint  Query&Rpts  PhysInvy  Loc'n  ...
Enter 'S' for Stock Accounting Module

DATE: 19 APR 01       TROOP ISSUE SUBSISTENCE ACTIVITY COMMAND MENU     AJK-600

                    OPTION CODE  RING MENU SELECTION OPTIONS
                        S        STOCK ACCOUNTING

                        F        FINANCIAL ACCOUNTING

                        M        FILES MAINTENANCE

                        Q        REPORTS AND INQUIRIES

                        P        PHYSICAL INVENTORY

                        L        STORAGE LOCATION

                        B        TISA BATCH PROCESSES

                        X        SIGN OFF TISA SUBSYSTEM
     SELECT DESIRED PROCESS BY ENTERING APPROPRIATE RING MENU OPTION CODE:
```

FIGURE 8.1-1 TISA Command Menu (AJK-600)

PURPOSE: Use this menu to choose the TISA Batch process you wish to run.

HOW TO USE THIS SCREEN: Enter the desired option code.

RESULT:

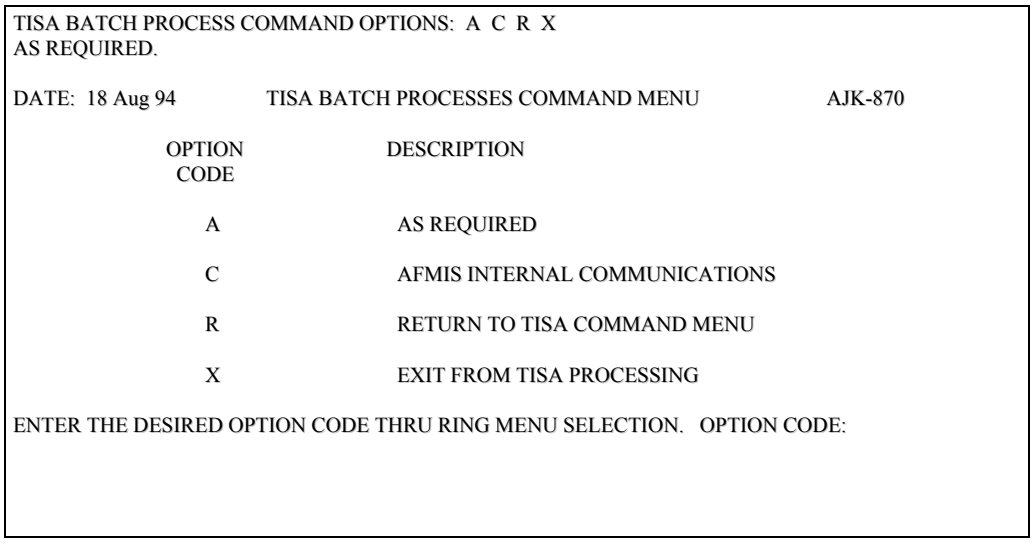


FIGURE 8.1-2 TISA Batch Process Command Menu (AJK-870)

If Option A is selected, the TISA Batch As Required Command Menu (AJK-871) is displayed. This option is the most used by the SA.

If Option C is selected, the AFMIS Internal Communications Command Menu (AJK-873) is displayed. This option is only used with direction from CAO.

If Option R is selected, the Troop Issue Subsistence Activity Command Menu (AJK-600) is displayed.

If Option X is selected or the interrupt key is pressed, TISA processing will be exited and you will be returned to the TISA Command Menu Screen AJK-600.

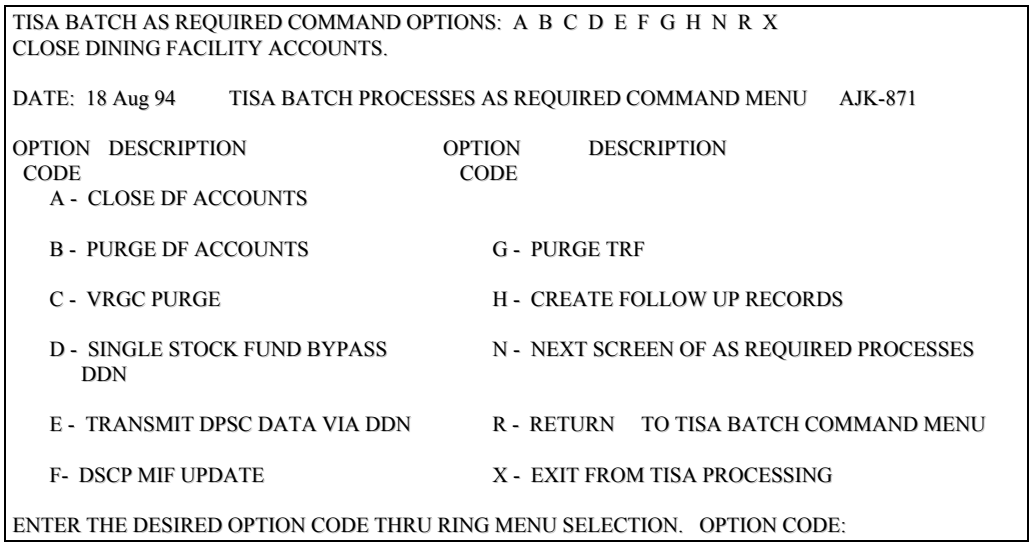


FIGURE 8.1-3 TISA Batch Processes As Required Command Menu (AJK-871)

PURPOSE: Use this menu to select the TISA Batch As Required subprocess you wish to run.

HOW TO USE THIS SCREEN:

Step 1 - Enter the desired option code.

Step 2 - If prompted to mount a tape on the tape drive (Options "B", "C", "D", "E", "F", and "G"), follow instructions and enter the value for which you are prompted.

RESULT:

If Option A - Close Dining Facility Accounts is selected, subprocess, AJK2G? is executed. This subprocess closes the previous month's dining facility accounts and updates current accounts with the forward balances. After execution of this subprocess, Screen AJK-871 is redisplayed. If a fatal error occurs during the execution of this subprocess, TISA processing will be exited.
If Option B - Purge Dining Facility Accounts is selected, subprocess, AJK2OP, is executed. This subprocess purges records that are more than three months old from the Customer Account Header (CAH) and Customer Account Trailer (CAT). All records meeting the purge criteria are written to tape and deleted from the CAH and CAT. If records are found that meet the purge criteria, you will be prompted to mount a tape on the tape drive. After execution of this subprocess, Screen AJK-871 is redisplayed. If a fatal error occurs during the execution of this subprocess, TISA processing will be exited.

If Option C - Voucher Register and General Control (VRGC) Purge is selected, subprocess, AJK2PP, is executed. This subprocess will purge records more than four months old from the VRGC. All records meeting the purge criteria will be written to tape and deleted from the VRGC. If records are found that meet the purge criteria, you will be prompted to mount a tape on the tape drive. After execution of this subprocess, Screen AJK-871 is displayed. If a fatal error occurs during the execution of this subprocess, TISA processing will be exited.

If Option D – Single Stock Fund Bypass via DDN is selected, subprocess, AJK78P, is executed. This subprocess reads the STARFIARS Interface File (SIF) and determines if records exist in this file to send to STARFIARS. If any STARFIARS records exist, a file will be created. If the transmission media is DDN, the file will be transmitted to STARFIARS. If the transmission media is TAPE, you are prompted to mount a tape on the tape drive and the created file will be copied to the tape. The summary of STARFIARS transactions, Written to Tape Report (PCN AJK-771) and AFMIS STARFIARS Tape Transactions Report (PCN AJK-1Q1) will be printed. After execution of this subprocess, Screen AJK-871 is redisplayed. If a fatal error occurs during the execution of this subprocess, TISA processing will be exited. For processing guidance, reference section 11.2.4.3 in the TISA Manual.

If Option E - Create DPSC Tape or Transmit DPSC Data via DDN is selected, subprocess, AJKYTP, will be executed. This subprocess reads the Document History Output (DHO) and determines if records exist on this file to send to DPSC. If records are found on the DHO that need to be sent to DPSC, the records are written to tape and marked as processed on the DHO. If the transmission media is DDN, the file will be transmitted to DPSC. If the transmission media is TAPE, you will be prompted to mount a tape on the tape drive and the created file will be copied to tape. The records written To DPSC Tape Report (PCN AJK-YU1) will be printed. After execution of this subprocess, Screen AJK-871 is redisplayed. If a fatal error occurs during the execution of this subprocess, TISA processing will be exited.

If Option F - DPSC Master Item File (MIF) Update is selected, the appropriate "WARNING" Screen will be displayed. If you choose to continue with the execution of the selected subprocess on the "WARNING" Screen, Screen AJK-871 will be redisplayed and the DPSC MIF Update (AJK4JP) subprocess is executed. This subprocess updates the following month's prices on the MIF using the DPSC Price Change Tape. You will be prompted to mount the DPSC Price Change tape on the tape drive. The following reports will be printed:

- DPSC MIF Update Report - Price Changes (PCN AJK-4J1)
- DPSC MIF Update Report - Unit of Issue Changes (PCN AJK-4J2)
- DPSC MIF Update Report - Seasonal Items No Longer Available (PCN AJK-4J3)
- DPSC MIF Update Report - Price Effective Date (PCN AJK-4J4)

After execution of this subprocess, Screen AJK-871 is redisplayed. If a fatal error occurs during the execution of this subprocess, TISA processing will be exited.

NOTE: These DPSC tapes are routinely received through the local Telecommunications Center (TCC) and, if prepared locally through Standard Entry/Exit Service (SEES), they need to be prepared as EBCDIC unlabeled tapes at 1600 bpi.

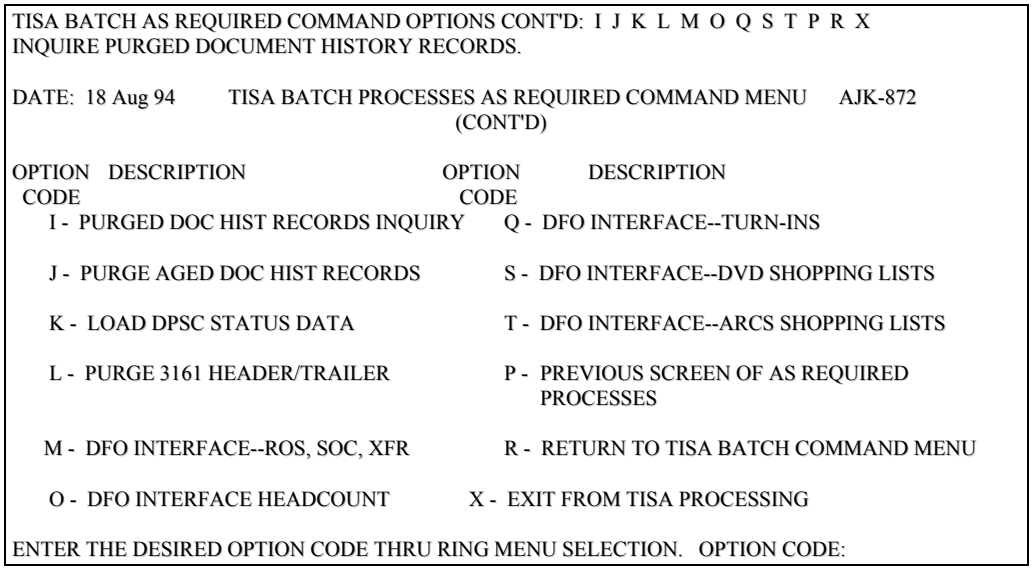
If Option G - Purge TRF is selected, subprocess, AJK6PP, will be executed. This subprocess purges records more than two months old from the Transaction Register File (TRF). All records meeting the purge criteria are written to tape and deleted from the TRF. If records are found that meet the purge criteria, you are prompted to mount a tape on the tape drive. The Transaction Register Purge Report (PCN AJK-6P1) will be printed. After execution of this subprocess, Screen AJK-871 is redisplayed. If a fatal error occurs during the execution of this subprocess, TISA processing will be exited.

If Option H, Create Follow-Up Records is selected, subprocess (AJKYFP) will be executed. This subprocess will read the Document History File (DHF) and identify transactions requiring follow-up. If transactions are found that require follow-up, it creates an ATA when no status is available, an AF1 when status has not been received, and an AK1 when the transaction is a cancellation request. The Follow-Up Records Generated Report (PCN AJK-YG1) will be printed.

If Option N - Next Screen of As Required Processes is selected, Screen AJK-872 will be displayed.

If Option R - Return to TISA Command Menu is selected, Screen AJK-600 will be displayed.

If Option X- Exit From TISA Processing is selected or the interrupt key is pressed, TISA processing will be exited.



```
TISA BATCH AS REQUIRED COMMAND OPTIONS CONT'D: I J K L M O Q S T P R X
INQUIRE PURGED DOCUMENT HISTORY RECORDS.

DATE: 18 Aug 94        TISA BATCH PROCESSES AS REQUIRED COMMAND MENU     AJK-872
                                          (CONT'D)

OPTION   DESCRIPTION                      OPTION        DESCRIPTION
 CODE                                      CODE
    I - PURGED DOC HIST RECORDS INQUIRY     Q - DFO INTERFACE--TURN-INS

    J - PURGE AGED DOC HIST RECORDS         S - DFO INTERFACE--DVD SHOPPING LISTS

    K - LOAD DPSC STATUS DATA               T - DFO INTERFACE--ARCS SHOPPING LISTS

    L - PURGE 3161 HEADER/TRAILER           P - PREVIOUS SCREEN OF AS REQUIRED
                                                PROCESSES

    M - DFO INTERFACE--ROS, SOC, XFR        R - RETURN TO TISA BATCH COMMAND MENU

    O - DFO INTERFACE HEADCOUNT             X - EXIT FROM TISA PROCESSING

ENTER THE DESIRED OPTION CODE THRU RING MENU SELECTION.  OPTION CODE:
```

FIGURE 8.1-4 TISA Batch Processes As Required Command Menu (AJK-872)

PURPOSE: Use this menu to select the TISA Batch As Required subprocess you wish to run.

HOW TO USE THIS SCREEN:

Step 1 - Enter the desired option code.

Step 2 - If prompted to mount a tape on the tape drive (Options "I", "J", "K"), follow the instructions and enter the value for which you are prompted.

RESULT:

If Option I - Purged Document History File Records Inquiry is selected, subprocess, AJKYDP, is executed and Screen AJK-815 will be displayed. This subprocess permits the user to inquire against DHF records which have been purged to tape.

NOTE: You must run Option J before you can run this process.

If Option J - Purge Aged Document History Records is selected, subprocess, AJKYSP, is executed. This subprocess purges closed records more than one month old from the DHF. If records are found which meet purge criteria, you are prompted to mount a tape on the tape drive. The Purged DHF Records Report (PCN AJK-YS1) will be printed. After execution of this subprocess, Screen AJK-872 is redisplayed. If a fatal error occurs during the execution of this subprocess, TISA processing will be exited.

If Option K - Load DPSC Status Data is selected, subprocess, AJK96U.X3, will be executed. This subprocess loads status records to the Document History Input (DHI) from the DPSC Status Tape. The DPSC To TISA Reports - TISA Status Records (PCN AJK-YV1) and the DPSC To TISA Reports - Non TISA Status Records (PCN AJK-YV2) will be printed. You are prompted to mount the DPSC Status tape on the tape drive. After execution of this subprocess, screen AJK-872 is redisplayed. If a fatal error occurs during the execution of this subprocess, TISA processing will be exited.

If Option L - Purge 3161 Header/Trailer is selected, subprocess, AJK1KP, will be executed. This subprocess will purge records from the 3161 Header (H3161) and 3161 Trailer (T3161) that are more than one month old. After execution of this subprocess, Screen AJK-872 is redisplayed. If a fatal error occurs during the execution of this subprocess, TISA processing will be exited.

NOTE: Options M, O, Q, S, and T are automatically run at the end of the day during the EOD process. However, when selected by the SA, files are updated as follows:

If Option M - DFO Interface-Report of Survey (ROS), Statement of Charges (SOC), and Transfers (XFR) is selected, subprocess, AJK1FP, is executed. This subprocess reads in ROS, SOC, And XFR transmitted from the DFO subsystem in the TIN. It checks for records with a "NULL" process code and Transaction Code of "ROS"; "SOC"; or "XFR"; performs validations; and updates the H3161 and T3161. The TIN records processed will be flagged with an "X" in the process code. After execution of this subprocess, Screen AJK-872 is redisplayed. If a fatal error occurs during the execution of this subprocess, TISA processing will be exited.

If Option O - DFO Interface-Post Headcount is selected, subprocess, AJK1IP, will be executed. This program reads the TIN to obtain headcount data (regular, adjusted, or holiday) from the DFO subsystem. The TIN is checked for unprocessed records with a transaction code of "H10" - "H15". Data validations are performed to ensure that the input is correct. The CAH, Installation Uniques File #2 (IUF2), Issue Frequency Table (ISSFREQ), and Report Control (CTL) are read to retrieve data needed to make the appropriate file updates. The Recipe Header (RHC), Other Headcount (OHC), and Common Services Headcount (CSHC) Files are updated with the validated headcount data. A CAT record is created and the corresponding CAH record is updated. When this processing is completed, the TIN is updated to mark the records as processed. After execution of this subprocess, Screen AJK-872 is redisplayed. If a fatal error occurs during the execution of this subprocess, TISA processing will be exited.

If Option Q - DFO Interface-Post Turn-Ins is selected, subprocess, AJKV6P, will be executed. This program reads the TIN for all unprocessed "TRN" transactions. The CIF and MIF are used to make the required validations on the Customer ID and National Stock Number (NSN). Valid transactions are written to the Receipt Control Header (RCH) and Receipt Control File (RCF) Files. After execution of this subprocess, Screen AJK-872 is redisplayed. If a fatal error occurs during the execution of this subprocess, TISA processing will be exited.

If Option S - DFO Interface- Direct Vendor Delivery (DVD) Shopping Lists is selected, subprocess, AJKZOP, will be executed. This subprocess retrieves the DVD Shopping List transactions from the TIN and performs required edits (Customer validation, MIF validation, and Vendor Order validation). If errors are found, Error Report (AJK-ZO1) is created and the invalid records are deleted from the TIN. If records are valid, they are posted to the Customer Order File (COF) table. DVD Requirements-DFO to TISA Report (AJK-ZO2), a list of all DVD requirements that passed edits, is generated. After execution of this subprocess, Screen AJK-872, is redisplayed. If a fatal error occurs during the execution of this subprocess, TISA processing will be exited.

If Option T - DFO Interface-Extract Army Ration Credit System (ARCS) Shopping Lists is selected, subprocess, AJKXQP, will be executed. This subprocess reads the TIN table, extracts all DFO Shopping List transactions, and writes them to the Issue List Header (ILH) table. It also flags the transactions as processed on the TIN. After execution of this subprocess, Screen AJK-872 is redisplayed. If a fatal error occurs during the execution of this subprocess, TISA processing will be exited.

If Option P - Previous Screen of As Required Processes is selected, Screen AJK-871 will be displayed.

If Option R -Return to TISA Batch Command Menu is selected, Screen AJK-870 will be displayed.
If Option X - Exit From TISA Processing is selected or the interrupt key is pressed, TISA processing will be exited.

If you select "LOAD DATA RECEIVED FROM ON-LINE DINING FACILITIES" on Screen AJK-873 and select Option "1" on WARNING Screen, the holding directory for data to be

loaded to the TISA/IFA/TISA-W database is searched. If data is found in this directory, an attempt will be made to load data to the Transaction Input File (TIN). After loading data, PCN AJK-752 (Data Loaded to the Transaction Input File) will be printed. If an error is encountered while loading data received from the DFO subsystem, an appropriate error message will be displayed. Upon completion of this subprocess, Screen AJK-873 is displayed. If Option "2" is selected (on the WARNING Screen), Screen AJK-873 is displayed with a message indicating that the subprocess was canceled.PURPOSE: This screen is intended to warn of the possible dangers in executing a process that will lock one or more database tables.

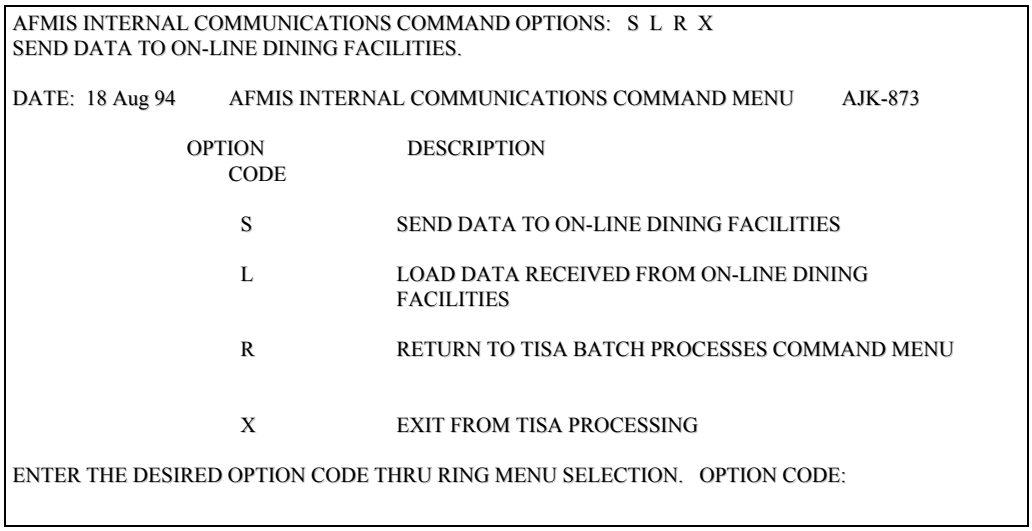


FIGURE 8.1-5 AFMIS Internal Communications Command Menu (AJK-873)

PURPOSE: Use this menu to choose the AFMIS Internal Communications subprocess you wish to run.

NOTE: These options are, normally, only used during deployment of the system when converting an installation.

HOW TO USE THIS SCREEN: Enter the desired option code.

RESULT: If Option S or Option L is selected, the appropriate "WARNING" screen is displayed.

If Option R is selected, screen AJK-870 is displayed.

If Option X is selected or the interrupt key is pressed, TISA processing will be exited.

WARNING ! !

THE CHOSEN PROCESS WILL LOCK ONE OR MORE DATABASE TABLES.
IF ANOTHER PROCESS IS CURRENTLY ACCESSING A DATABASE TABLE THAT
THIS PROCESS LOCKS OR ANOTHER PROCESS ATTEMPTS TO ACCESS A DATABASE
TABLE THAT THIS PROCESS LOCKS WHILE THIS PROCESS IS EXECUTED, THIS
PROCESS MAY ABORT AND/OR CAUSE THE OTHER PROCESS TO ABORT.
PLEASE NOTE THAT YOU ARE NOT THE ONLY PERSON SIGNED ON TO THE SYSTEM.

OPTION	OPTION DESCRIPTION
1	CONTINUE WITH THE EXECUTION OF THE CHOSEN PROCESS.
2	CANCEL THE EXECUTION OF THE CHOSEN PROCESS.

ENTER THE DESIRED OPTION AND DEPRESS <RETURN>

OPTION:

FIGURE 8.1-6 TISA Batch Processes (Warning Screen)

8.1.2 As Required Batch

The As Required Batch processes perform a variety of special processing requirements that should be performed on a regular basis. Many of the As Required processes may require using the tape drive to load and create 9-track 1600 bpi tapes as a result of program execution. The SA or designated operator running these processes will be prompted to load the appropriate tape to the tape drive and verify this procedure has been done. The TISA As Required Batch Technical Flow Chart (Figure 8.1-3) shows the processing flow of programs, screens, input from 9-track tape media, output to 9-track tape media, and identifies the Product Control Numbers (PCN) of generated reports.

HOW TO USE THIS SCREEN:

Step 1 - Enter the desired option code.

Step 2 - Press <ENTER>.

RESULT: If you select "SEND DATA TO ON-LINE DINING FACILITIES" on Screen AJK-873 and select Option "1" on WARNING Screen, the Customer Information File (CIF) is read to obtain customer activity codes that are online (status code = "A"). If at least one online customer is found on the CIF, the Transaction Output File (TOT) is read. All unprocessed data on the TOT to be sent to the online customers is unloaded to ASCII files and marked as processed on the TOT. All unloaded data is transferred to a holding directory where it is loaded to the DFO database. PCN AJK-753 (Data Sent to Online Dining Facilities) will be printed. If an error is encountered while sending data to the DFO subsystem, an appropriate error message is displayed. Upon completion of this subprocess, Screen AJK-873 is displayed. If Option "2" is selected (on the WARNING Screen), Screen AJK-873 is displayed with a message indicating the subprocess was canceled.

8.2 Special DFO Batch Operation Requirements

The AFMIS system application software has special requirements that should be performed on a regular basis.

8.2.1 DFO Batch Operation Requirements

To enter the Dining Facility batch menu, the SA can type

```
afmis> cd /informix/dfo/pgms
afmis> ajkknp.4ge
```

See below Figure 8.2-1.

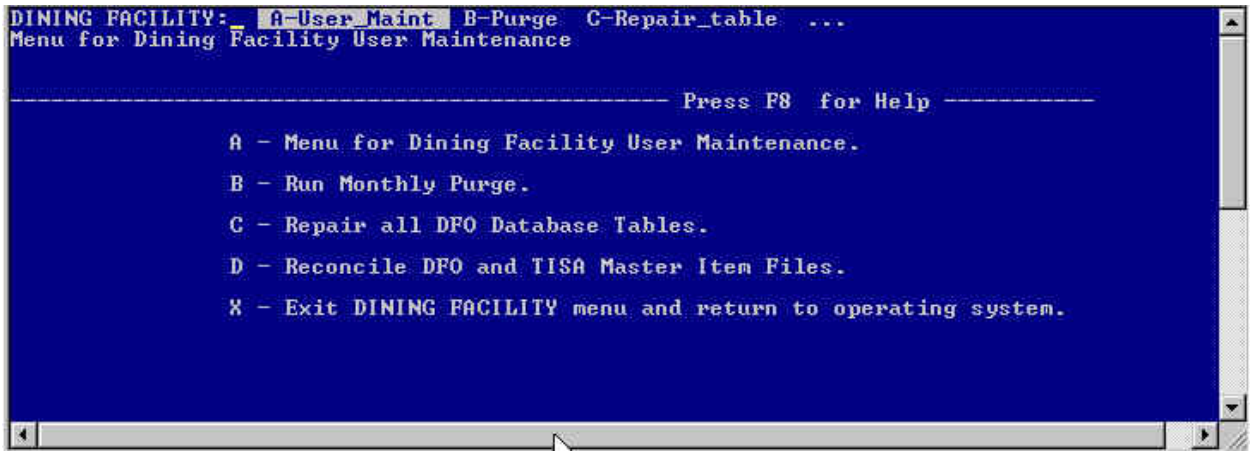


FIGURE 8.2-1 DFO SA Functions

PURPOSE: Use this menu to select the DFO process you wish to run.

HOW TO USE THIS SCREEN: Enter the desired option code.

RESULT:

If Option A - Menu for Dining Facility User Maintenance is selected, the DFO User Main Menu will be displayed. See Figure 8.2-2

If Option B - Run Monthly Purge is selected, the Monthly Purge process will be executed.

If Option C - Repair All DFO Database After the process is completed, the SA can exit. See Figure 8.2-7.

If Option D - Reconcile DFO and TISA Master Files Item. See Figure 8.2-8

If Option X - Exit Dining Facility Menu and Return to Operating System is selected, DFO processing will be exited.

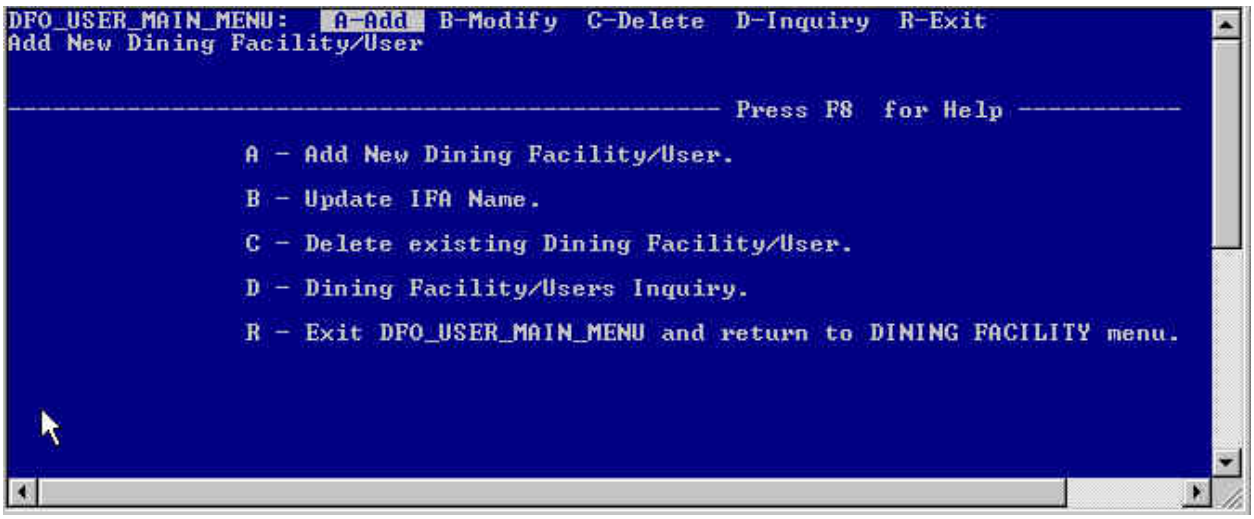


FIGURE 8.2-2 SA Functions DFO USER MAIN Menu

PURPOSE: Use this menu to select the DFO process you wish to run.

HOW TO USE THIS SCREEN: Enter the desired option code.

RESULT:

If Option A - Add New Dining Facility/User is selected, the DINING FACILITY ADD, Screen AJK-601, will be displayed. See figure 8.2-3

If Option B - Modify Dining Facility/User is selected, the DINING FACILITY UPDATE, Screen AJK-601, will be displayed. See Figure 8.2-4

If Option C - Delete Existing Dining Facility/User is selected, the DINING FACILITY DELETE, Screen AJK-602, will be displayed. See figure 8.2-5

If Option D - Dining Facility/User Inquiry is selected, Screen AJK-537 will be displayed. See Figure 8.2-6

If Option R, - Exit DFO_USER_MAIN_MENU and Return to Dining Facility Menu is selected, DFO processing will be exited.

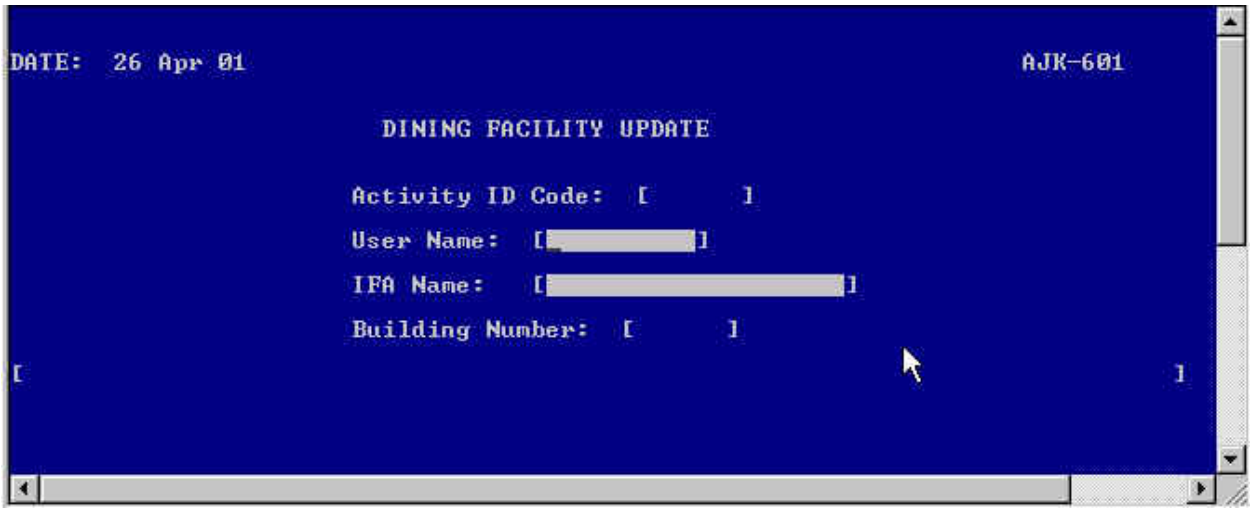


FIGURE 8.2-3 Dining Facility Add Screen (AJK-601)

PURPOSE: This screen is used to add a new dining facility, user, or IFA.

HOW TO USE THIS SCREEN:

1. Required entries:

   Activity ID Code
   User Name
   IFA Name (only if sub-IFA is used)
   Building Number

2. Press the RETURN key after entering data.

RESULT: The system returns to the DINING FACILITY menu after the RETURN key is pressed

FIGURE 8.2-4 Dining Facility Update Screen (AJK-601)

PURPOSE: This screen is used to modify an existing dining facility.

HOW TO USE THIS SCREEN:

1. Required entries:

   User Name

2. Press the RETURN key after entering data.

RESULT: The system returns to the DINING FACILITY menu after the RETURN key is pressed.

FIGURE 8.2-5 Dining Facility Delete Screen (AJK-602)

PURPOSE: This screen is used to delete an existing dining facility user.

HOW TO USE THIS SCREEN:

1. Required entries:

   Activity ID Code or
   User Name

2. Press the RETURN key after entering data.

RESULT: The system returns to the DINING FACILITY menu after the RETURN key is pressed.

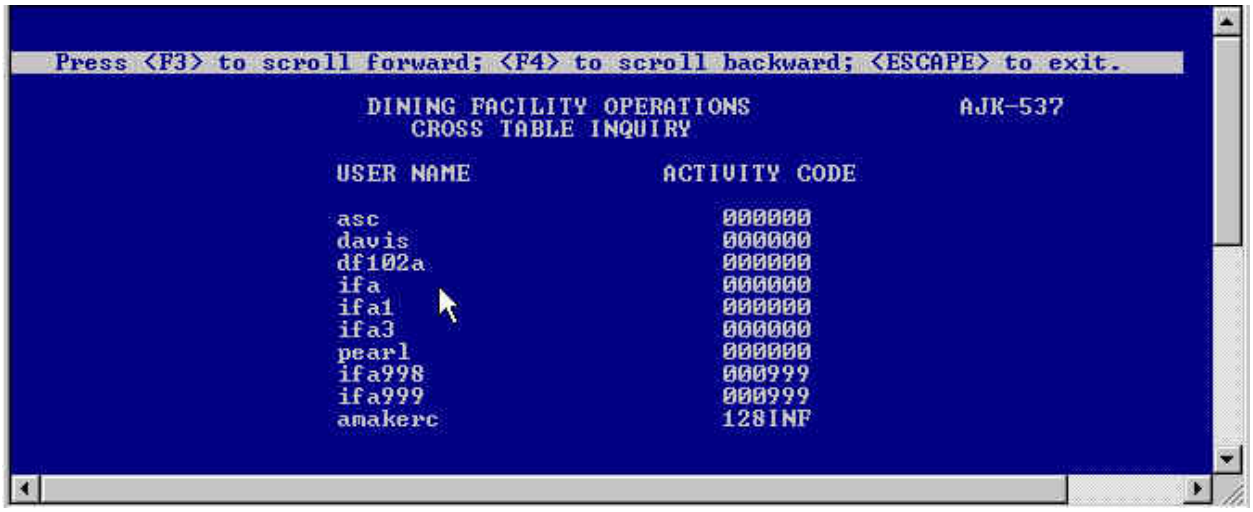


FIGURE 8.2-6 Dining Facility Operations Cross Table Inquiry Screen (AJK-537)

PURPOSE**:** This screen allows the SA to view all users/dining facilities/sub-user codes entered into the CROSS table.

HOW TO USE THIS SCREEN: There is no input for this screen. Use the F3 key to scroll forward, the F4 key to scroll backwards through the list, and the Escape key to exit.

RESULT: All the users/dining facilities/sub-user codes are displayed for reference. When you finish your review, press <ESC>. The DFO_USER_MAIN_MENU is displayed.

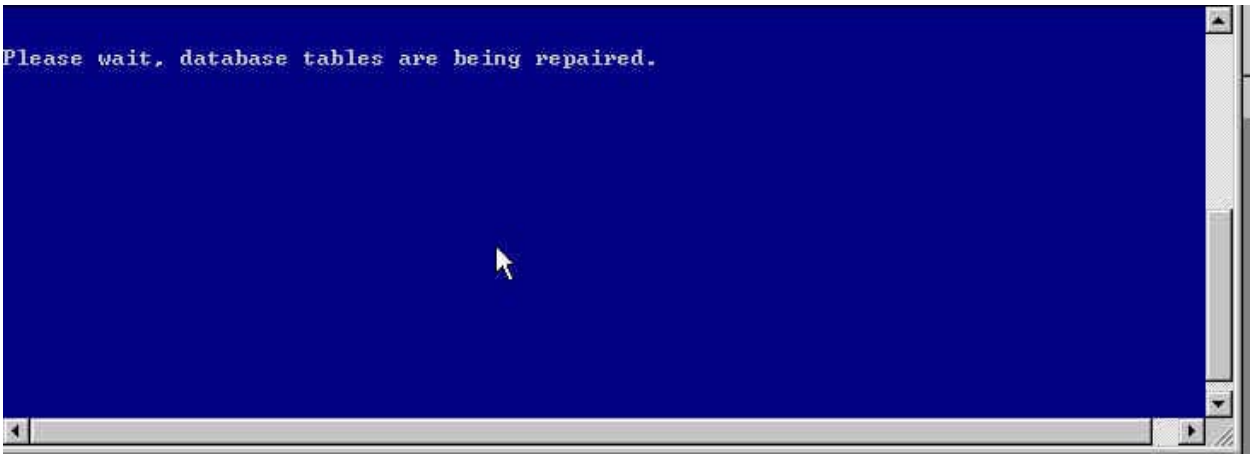


FIGURE 8.2-7 Repair DFO Database Tables

PURPOSE: Use this menu to repair the DFO's tables.

HOW TO USE THIS SCREEN: There is no input for this screen.

RESULT:

The DFO's Tables will be purged

FIGURE 8.2-8 DFO Master Item file Reconciliation Screen (AJK-223)

PURPOSE: Use this menu to reconcile database between the DFO's and TISA.

HOW TO USE THIS SCREEN: Enter the desired option code.

RESULT:

If Option 1 - Process will start.

If Option 2 - Figure 8.2-1 will appear.

8.3 Special End-of-Day/End-of-Month Requirements

The AFMIS system application software has special requirements that should be performed daily/monthly.

8.3.1 EOD/EOM Operation Requirements

The End-of-Day process must be run daily. EOD should be run as late as possible in the day, convenient to the users. The EOD/EOM process is executed by logging in as eod at the login prompt.

Login: eod
password:

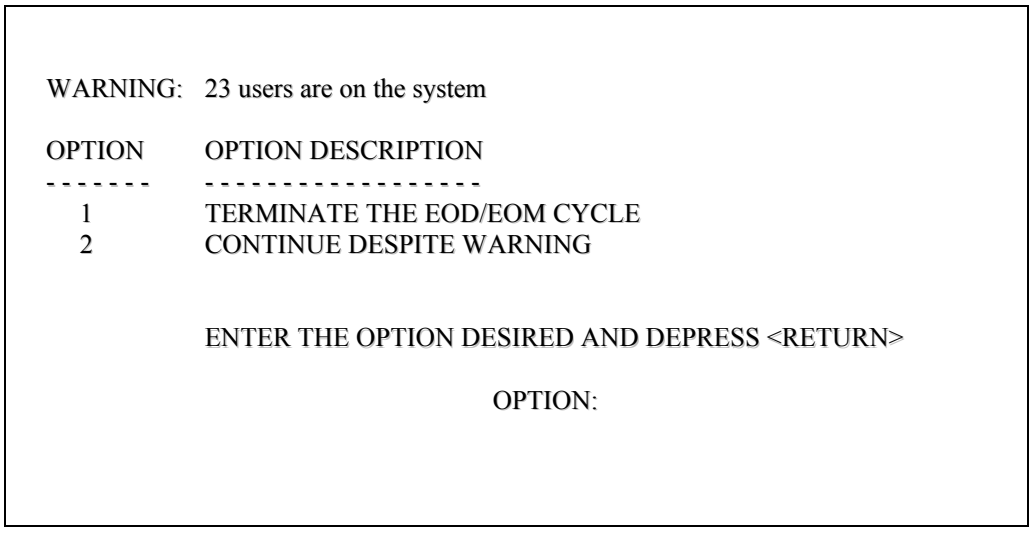


FIGURE 8.3-1 EOD/EOM User Warning Screen

PURPOSE: This screen allows you to terminate or continue the EOD/EOM process after being informed there are multiple users on the system. Continue only after all users are off the system because any user, other than you, will have their permissions revoked from the database to prevent data corruption. If unable to remove all users from the system at this time, this screen allows you to terminate the EOD/EOM job stream and restart at a later time.

HOW TO USE THIS SCREEN: Enter the number corresponding to the option you select, and press return.

RESULT:

If Option 1 is selected, the EOD/EOM job stream will terminate at the operator's request.

If Option 2 is selected, the EOD/EOM job stream will continue (regardless of the number of users on the system).

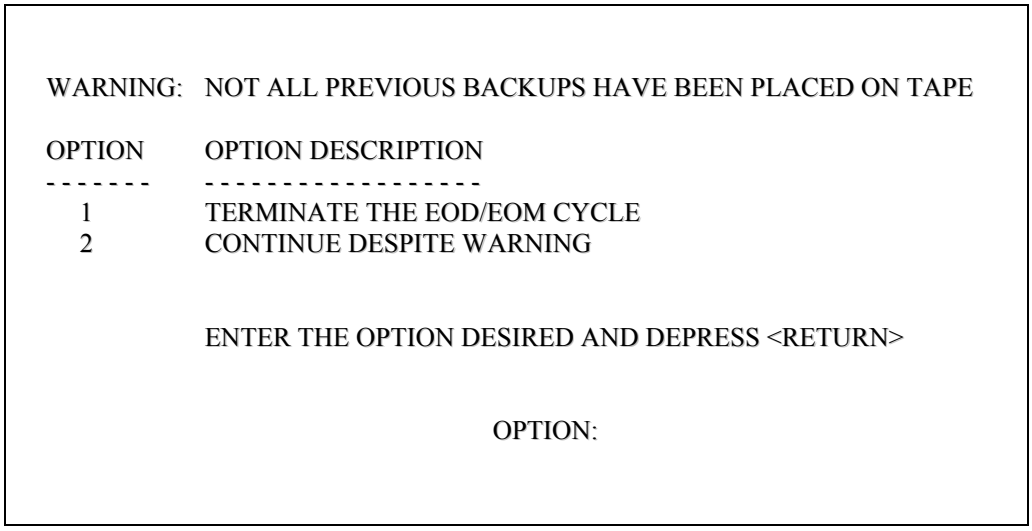


FIGURE 8.3-2 EOD/EOM Tape Warning Screen

PURPOSE: This screen allows you to terminate or continue the EOD/EOM process after being informed the previous back-ups have not been stored on the tape device. If this screen appears, it means that ajk71u.x01 has not been executed today. In most cases, you should terminate the job stream and place the back-ups on tape to avoid overwriting them. After placing the back-ups on tape, restart the job stream. If certain that previous back-ups are no longer needed or the CAO has instructed you to do so, you may continue the job stream overwriting the previous back-ups.

HOW TO USE THIS SCREEN Enter the number corresponding to the option you select, and press return.

RESULT:

If Option 1 is selected, the EOD/EOM job stream will terminate at the operator's request.

If Option 2 is selected, the EOD/EOM job stream will continue (and overwrite the previous back-ups in the process).

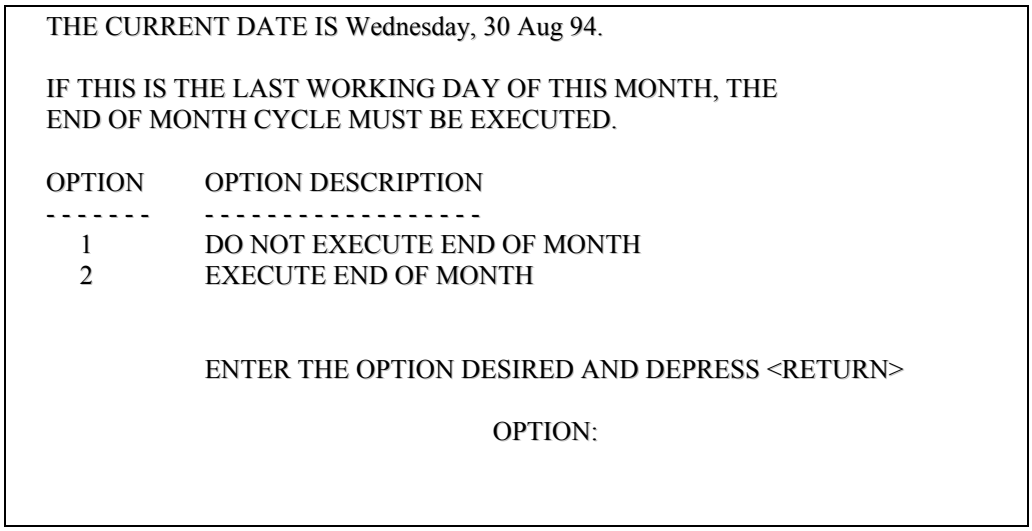


FIGURE 8.3-3 EOD/EOM Current Date Option Screen

PURPOSE: This screen is displayed between the 25th and the end of the month to allow execution of EOM immediately following this run of EOD. EOM should only be executed on the last working day of the month.

HOW TO USE THIS SCREEN:

Enter the number corresponding to the option you select, and press return.

RESULT:

If Option 1 is selected, the EOM process will not be executed but the EOD process will be executed.

If Option 2 is selected, the EOM process will be executed immediately after the completion of the EOD process.

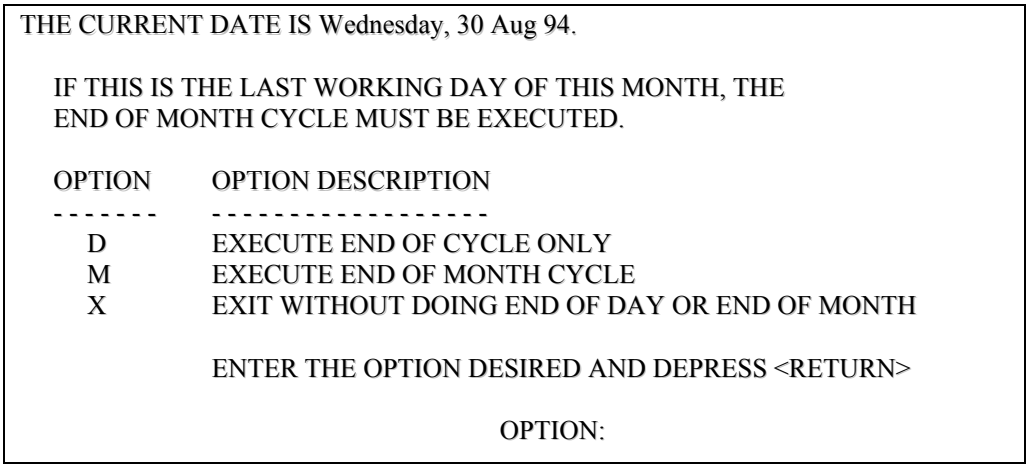


FIGURE 8.3-4 EOD/EOM Option Screen

If Option D is selected, the EOD process will be executed.

If Option M is selected, the EOM process will be executed

8.4 AFMIS Monthly Schedule of Events

TISO is responsible to verify that all processes/functions, impacting on the EOM process, are completed before running the EOM. The SA/TISO should use the following as a checklist to ensure all steps are completed for a successful EOM run. SQL is provided to verify that various processes are completed.

- Create Issue Frequency Schedule. By the 15th of the month, TISA should create the Issue Frequency Schedule for the following month. This can be checked by running the following SQL:

  SELECT COUNT (*)
  FROM iff
  WHERE dt_iff = 1st day of next month.

  For example, if November, IFF date = "11/01/1993" If COUNT (*) = 0 THEN, the Issue Frequency Schedule must be created. Notify TISO to create the Issue Frequency Schedule using the File Maintenance process.

- Compute BDFA. By the 25th of the current month, TISO should complete the following:

  - Run the Compute BDFA process to compute BDFA for the next calendar month. This can be checked by running the following SQL:

    SELECT nxt_bdfa_troop
    FROM iuf2

    If nxt_bdfa_troop = 0, notify the TISO to compute the BDFA for next month using the Files Maintenance function.

  - TISO should verify with SA that the DPSC price change tape has been processed. If a tape is unavailable and there are price changes, the changes must be made using the File Maintenance (MIF) process to enter changes. The C8900-PL should be used to enter changes in the next month price field. The SA should make sure the DPSC price change tape has been run for verification.

NOTE: TISO should verify price changes in the system with the C8900-PL. This ensures changes are correct for all items as listed in the C8900-PL.

- TISO creates DVD Obligations for next month. Procurement Instrument Identification Number (PIIN) must be added through the Review and Adjust Obligation Estimate process. This is checked by running the following SQL:

  Select COUNT (*)
  FROM oef WHERE sta_cd = "D"

  IF count = 0, notify TISO to create the DVD Obligations in the Direct Vendor Delivery subfunction.

- Before running EOD on the last working day of the month, complete the following:

  - Enter all receipts for items delivered during the month (excluding DVD items). Make sure that all entries are made because there is no way to check this.

  - Enter and execute all issues for the month. The ideal situation is to enter and execute all issues before the last working day. However, it allows user to execute them if the customer accounts are open for last month (if executed after EOM, the prices changed for the item(s), will be used). There is an inquiry in issues to check on executed/unexecuted issues.

  - Enter and process all turn-ins for the month. In the Receipts process, there are two inquiries that assist the user for turn-ins. The first is for a detailed turn-in and the other is for a summary of turn-ins.

  - Enter and process all XFR, ROS, and SOC for the month.

    SELECT * FROM h3161
    WHERE sta_cd != "D" AND MONTH (dt_trans) = current month
    (e.g. November = 11)

    If record(s) are found, the transfers, reports of survey, and statement of charges must be processed. If XFR, ROS, and SOC need to be processed after EOM, they can be processed as long as the customer accounts are open. Current MIF prices will be used.

  - Close or cancel all blanket purchase agreement (BPA) orders. In the BPA process, the user can use the BPA inquiry to view closed/open BPA orders and take the appropriate action.

  - If an accountable inventory is to be used to close the VRGC for the current month, month, a SELECT can be used to verify that the inventory has been done.

    SELECT dt_lst_pi FROM iuf, If dt_lst_pi is in current month, the accountable inventory has been completed.

- If an accountable inventory is NOT to be used to close the VRGC for the current month, EOD/EOM may be run after Step 5.

- To close the VRGC, you must complete the following steps:

- Receipt for all DVD customer and vendor orders.

NOTE: An EOD must be run before Step 2 can be completed. Direct Vendor Delivery Open Expired Obligations Report (PCN AJK-Z12) will be generated during EOD to identify Open DVD Obligations.

- Close DVD Obligations.

  SELECT clsd_dvd_ord
  FROM iuf2

  If clsd_dvd_ord[closing month] = "N"
  (e. g., closing month = November = 11), means Open DVD Obligations for closing month). Must close Open DVD Obligations.

- Verify all headcounts, issues, turn-ins, ROS, SOC, and XFR have been entered/processed/posted to all files before Step 4 is completed.

- Flag Customer Accounts for Closing (FA).

  If the "ALL" Option (A = ARCS, F = Field Ration Issue System (FRIS), O = OTHER is not used; caution must be taken to ensure that all accounts are flagged.

NOTE: Once the customer accounts are flagged for closing, no postings can be made. Flagged accounts cannot be unflagged!

  SELECT UNIQUE close_flag, type_cust_acct
  FROM cah
  WHERE MONTH
  (dt_acct) = close_month (If close_month = November = 11).

  IF a close_flag = "N" on Select, must close all customer accounts with the associated type_cust_acct (A, F, O).

- Close DF Accounts. This process is run after all customer accounts have been flagged for closing (close_flag = "Y"). When the Close DF Accounts have been Run from the Batch As Required process, the close_flag will be "V". SELECT UNIQUE close_flag FROM cah WHERE MONTH (dt_acct) = close_month. If any other close_flag than V, must run this process.

- Close the VRGC with one of the following options:

- Book Inventory Option 1 - No accountable inventory was taken for the closed month.

- Accountable Inventory Option 2 (End-of-Month) - An accountable inventory was taken during the closing month - preferably the last working day of the month.

When either option is chosen, there will be a voucher 1 for next month in the VRGC file.

```
SELECT COUNT(*)
FROM vrgc
WHERE MONTH (dt_vrgc) = current month AND num_vrgc = 1
```

If COUNT = 1 THEN, VRGC has been closed; or close the VRGC with one of the closing options.

8.5 Automated HeadCount Processing

The Automated Headcount (AHC) process is used to collect headcount data and upload to the SCO server. The data is collected via Card Reader and Scanner used in the AFMIS Point Of Sale (POS.)

8.5.1 AHC Process Requirements

All processing for the AHC will be involved through the TISA Batch Command Menu. The As Required selection from this menu is the major part of the batch jobs (Figure 8.5).

The menu can also be accessed through the AHC Menu System. To enter the menu you must login as "ahcuser" or login as root then change user to "ahcuser" by typing "

#

su - ahcuser (Figure 8.5 (AJK-953) will appear)

PURPOSE: Use this menu to choose the AHC Command Menu option

HOW TO USE THIS SCREEN: Enter the desired option code.

RESULT:

Automated Headcount Command menu (AJK953) is displayed. These options are the most used by the SA.

If Option A is selected, Automated Maintain files Headcount Command menu (AJK954) will appear, Figure 8.5-1

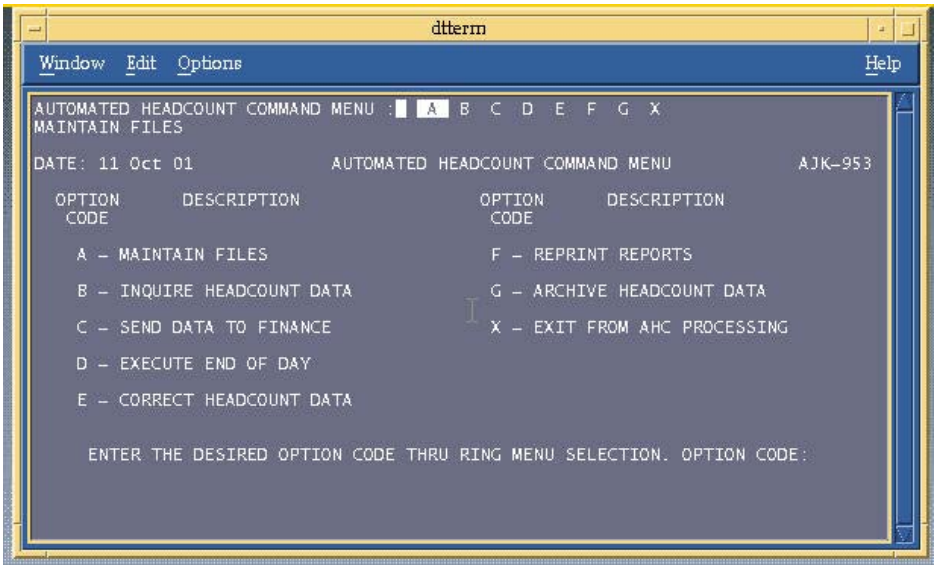


Figure 8.5 Automated Headcount command Menu AJK953

PURPOSE: Use this menu to choose the AHC Command Menu option

HOW TO USE THIS SCREEN: Enter the desired option code.

RESULT:

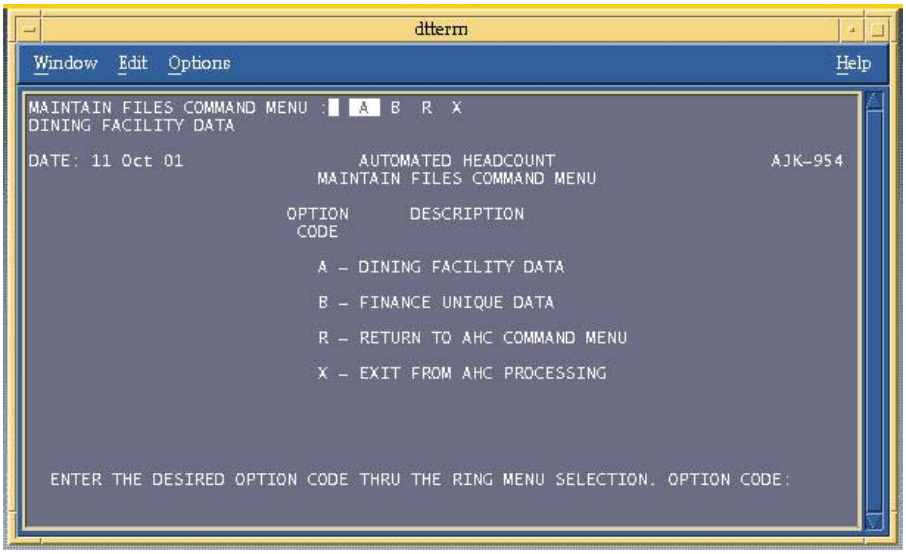


Figure 8.5-1 Maintain Files Command Menu AJK954

If Option A is selected, the Dining Facility Data Command Menu (AJK-940) is displayed, Figure 8.5-2.This option is the most used by the SA.

If Option B is selected, the Finance Unique Data Communications Command Menu (AJK-951) is displayed. This option is only used with direction from SEC LEE CAO. See Figure 8.5-10

If Option R is selected, the Automated Head Count Command Menu (AJK-953) is displayed, see Figure 8.5

If Option X is selected or the interrupt key is pressed, Automated Headcount processing will be exited.

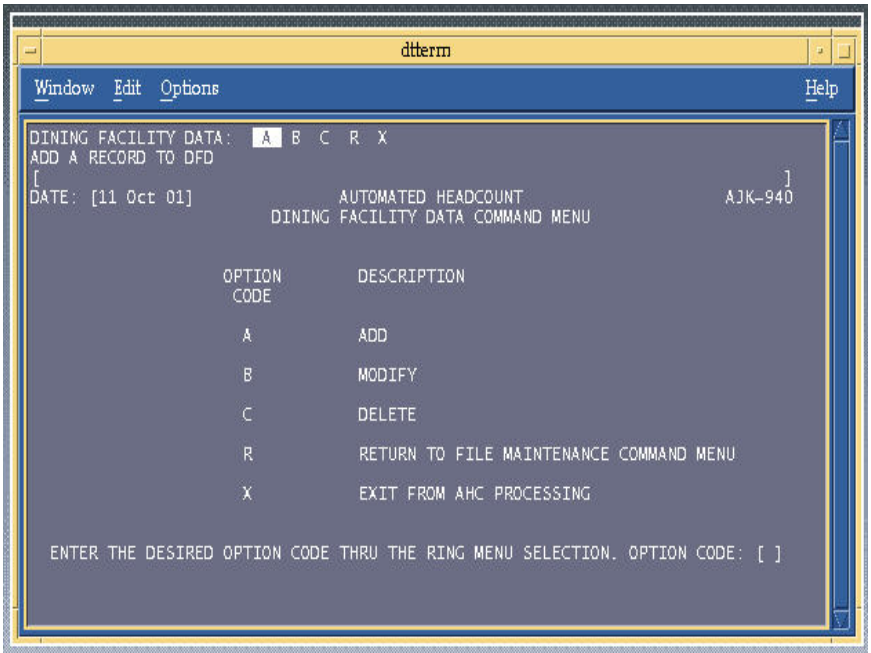


Figure 8.5-2 Dining Facility Command Menu AJK940

PURPOSE: Use this menu to select the Automated Headcount processes you wish to run.

HOW TO USE THIS SCREEN:

Step 1 - Enter the desired option code.

RESULT:

If Option A - Add is selected, the DINING FACILITY ADD, Screen AJK-941, will be displayed. See figure 8.5-3

If Option B - Modify is selected, the DINING FACILITY MODIFY, Screen AJK-941, will be displayed. See Figure 8.5-5

If Option C – Delete is selected, the DINING FACILITY DELETE, Screen AJK-941, will be displayed. See figure 8.5-8

If Option R - Return to File Maintenance Menu, Screen AJK-954, will be displayed. See figure 8.5-1

If Option X- Exit From Dining Facility Command Menu. Automated Headcount process will be exited.

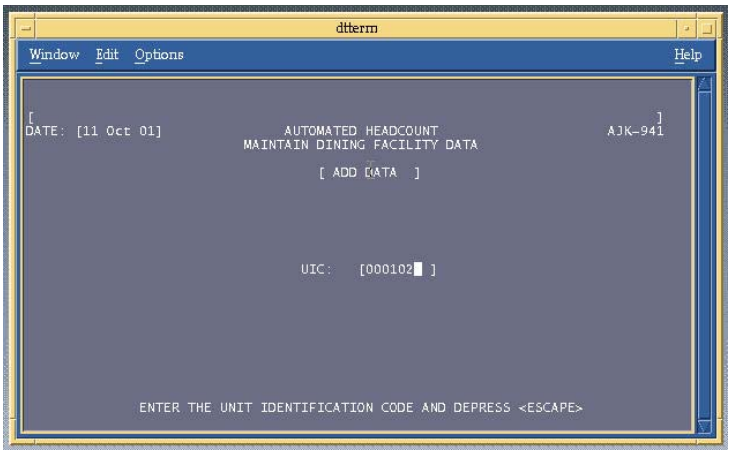


Figure 8.5-3 Maintain Dining Facility Data AJK941

PURPOSE: Use this menu to enter the appropriate UIC you wish to add.

HOW TO USE THIS SCREEN:

Step 1 - Enter the appropriate UIC code.

RESULT:

Screen AJK-942 will be displayed. See figure 8.5-4.

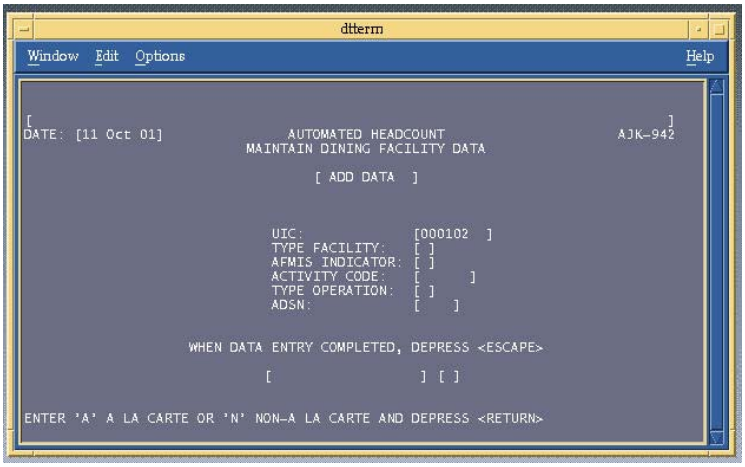


Figure 8.5-4 Maintain Dining Facility Data AJK942

PURPOSE: Use this menu to add UIC data.

HOW TO USE THIS SCREEN:

Step 1 - Enter the appropriate UIC code.

RESULT:

Screen AJK-942 will be displayed. See figure 8.5-4.1

PURPOSE: This screen is used to add Automated Headcount data to a new dining facility.

HOW TO USE THIS SCREEN:

1. Required entries:

   UIC:
   Type Facility:
   AFMIS Indicator:
   Activity Code:
   Type Operation:
   ADSN:

2. Press the “Esc” key and figure 8.5-4.1 will appear

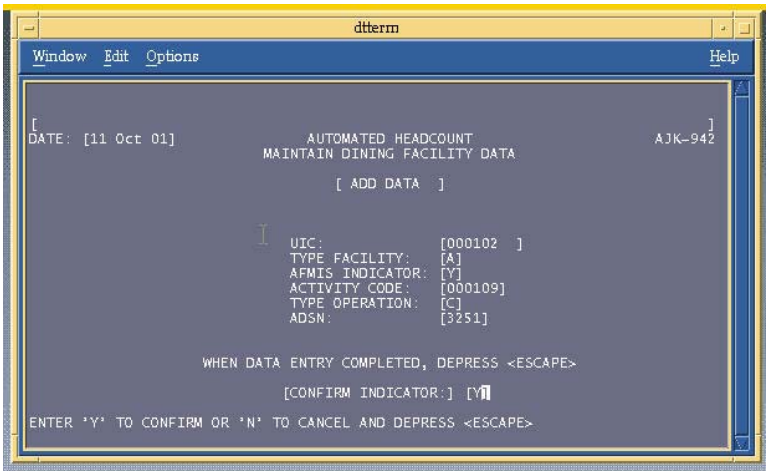


Figure 8.5-4.1 Maintain Dining Facility Data AJK942

3. Confirm entry by typing “Y” and pressing the “Esc” key.

RESULT: The system returns to the Dining Facility Command Menu (AJK940) menu after the RETURN key is pressed

If Option B - Modify is selected, the Maintain Dinning Facility Data, Screen AJK-941, will be displayed. See Figure 8.5-5

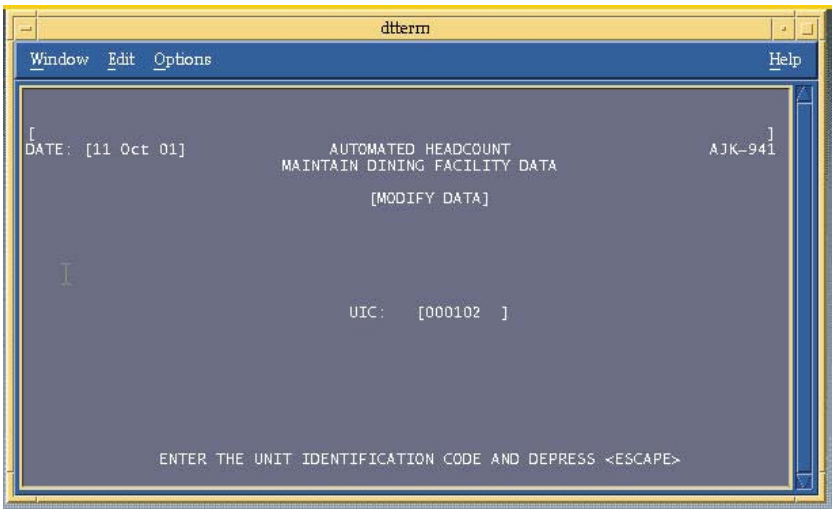


Figure 8.5-5 Maintain Dining Facility Data AJK941

PURPOSE: Use this menu to change UIC data.

HOW TO USE THIS SCREEN:

Step 1 - Enter the appropriate UIC code.
Step 2 - Press the "Esc" key

RESULT:

Screen AJK-942 will be displayed. See figure 8.5-5.

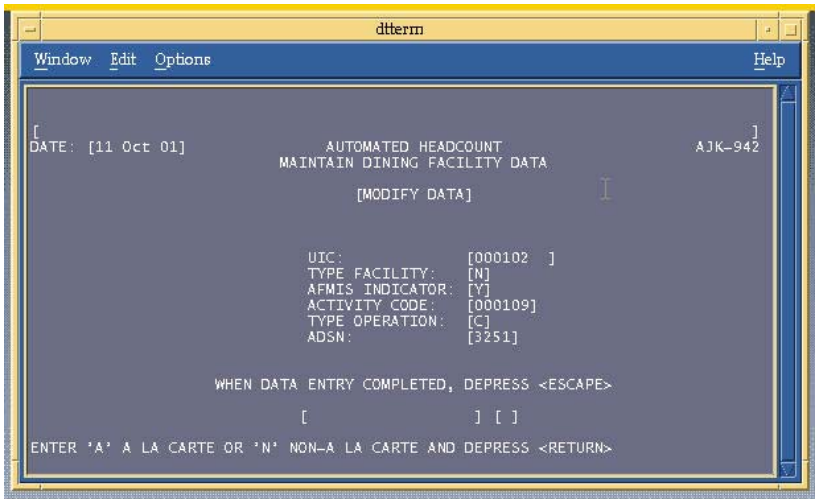


Figure 8.5-5 Maintain Dining Facility Data AJK942

RESULT:

Screen AJK-942 will be displayed. See figure 8.5-5.

PURPOSE: This screen is used to modify Automated Headcount data from a dining facility.

HOW TO USE THIS SCREEN:

1. Make changes as needed to:

   UIC:
   Type Facility:
   AFMIS Indicator:
   Activity Code:
   Type Operation:
   ADSN:

2. Press the "Esc" key and figure 8.5-5.1 will appear.

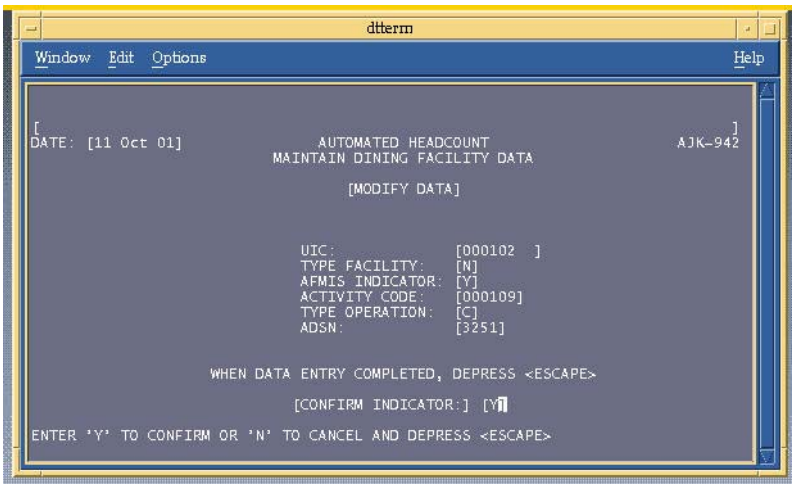


Figure 8.5-5.1 Maintain Dining Facility Data AJK942

3. Confirm entry by typing "Y" and pressing the "Esc" key.

RESULT: The system returns to the Dining Facility Command Menu (AJK940) menu. See Figure 8.5.

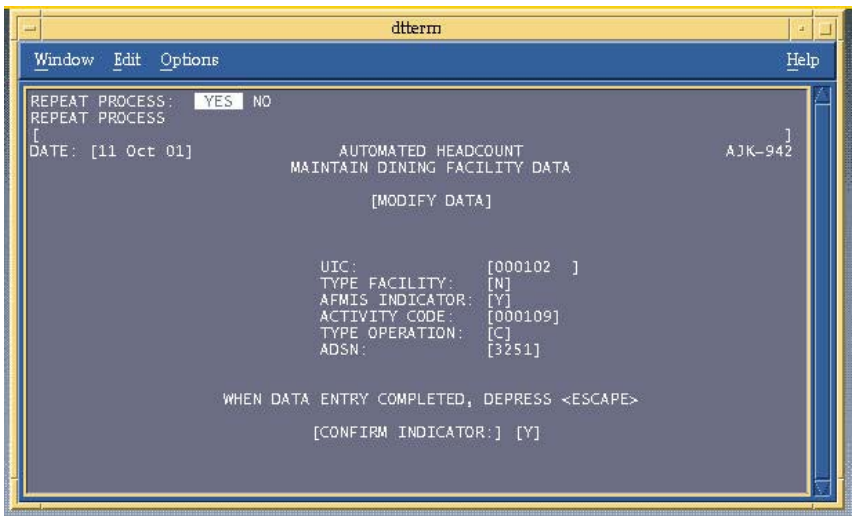


Figure 8.5-6 Maintain Dining Facility Data AJK942

This screen will give you the opportunity to make another change or to exit the Modify option. If you wish to make more changes, accept the "yes" option and press the "Enter" key and Figure 8.5-5 will appear.

If you are done with the changes, use the arrows keys to highlight the "no" option, press the "Enter" key and Figure 8.5-2 will appear.

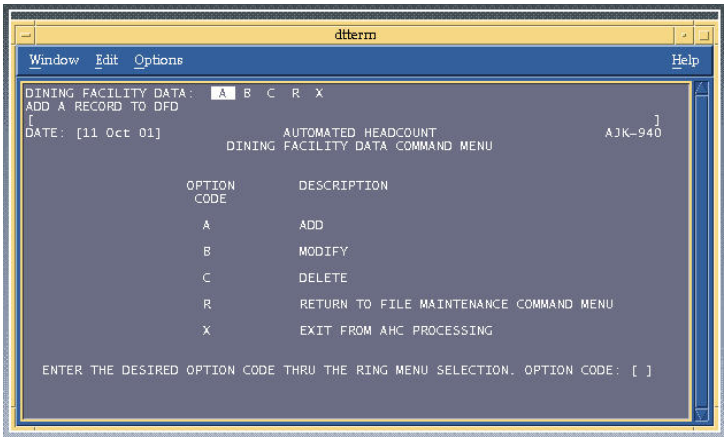


Figure 8.5-7 Dining Facility Data Menu AJK940

PURPOSE: Use this menu to select the option you wish to run.

HOW TO USE THIS SCREEN:

Step 1 – Select Option "C" to Delete. Figure 8.5-8 will be displayed.

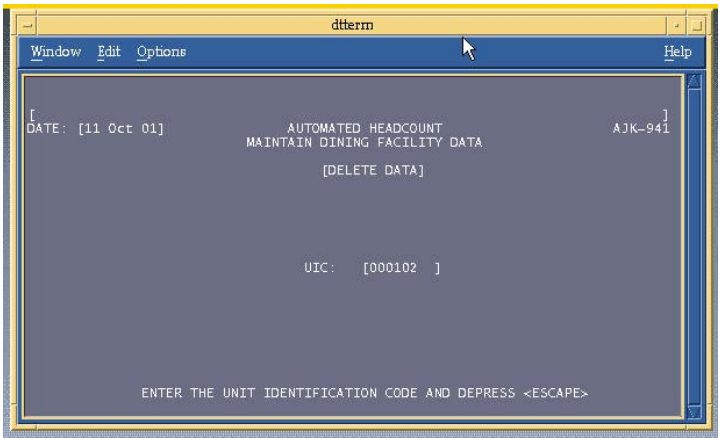


Figure 8.5-8 Dining Facility Data Menu AJK941

Enter the appropriate UIC code.

RESULT:

Screen AJK-942 will be displayed. See figure 8.5-9.

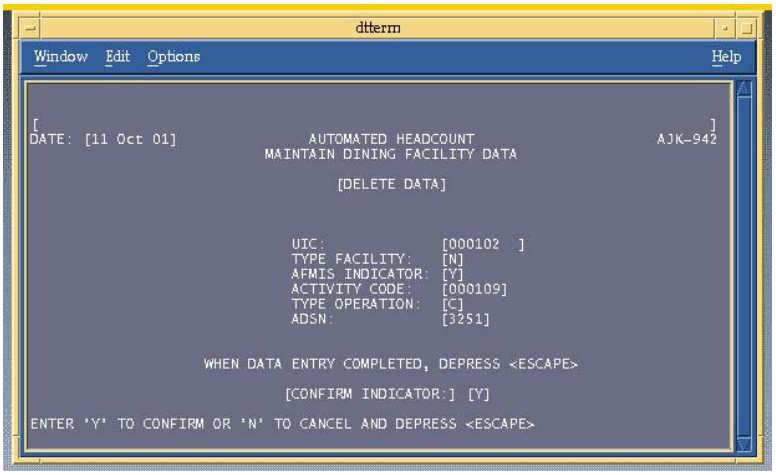


Figure 8.5-9 Maintain Dining Facility Data AJK942

Confirm record deletion by entering “Y” in the Confirm Indicator and pressing the “Esc” key

RESULT: The system returns to the Dining Facility Command Menu (AJK-940). See Figure 8.5-7 above.

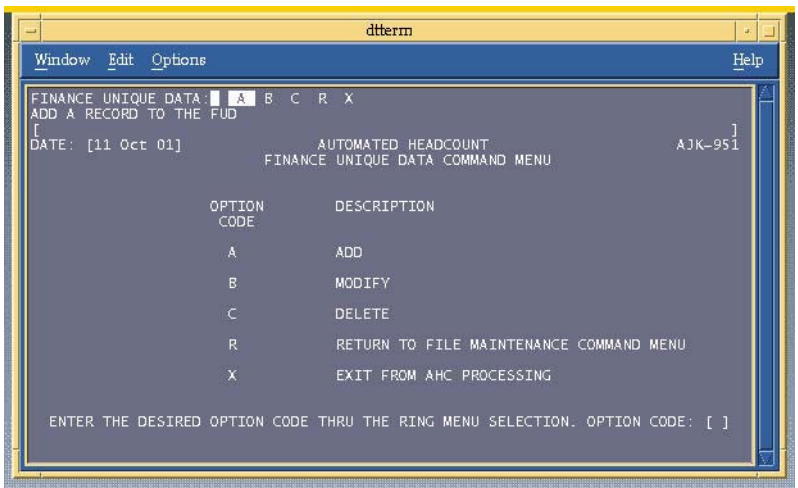


Figure 8.5-10 Finance Unique Data Command Menu AJK951

PURPOSE: Use this menu to select the Finance Unique Data Command Menu processes you wish to run.

HOW TO USE THIS SCREEN:

Step 1 - Enter the desired option code.

RESULT:

If Option A - Add is selected, the Maintain Finance Unique Data - ADD, Screen AJK-952, will be displayed. See figure 8.5-11

If Option B - Modify is selected, the Maintain Finance Unique Data - MODIFY, Screen AJK-952, will be displayed. See Figure 8.5-14

If Option C – Delete is selected, the Maintain Finance Unique Data - DELETE, Screen AJK-952, will be displayed. See figure 8.5-??

If Option R - Return to File Maintenance Menu, Screen AJK-602, will be displayed. See Figure 8.5-15

If Option X- Exit From Finance Unique Data Command Menu and the Automated Headcount process will be exited.

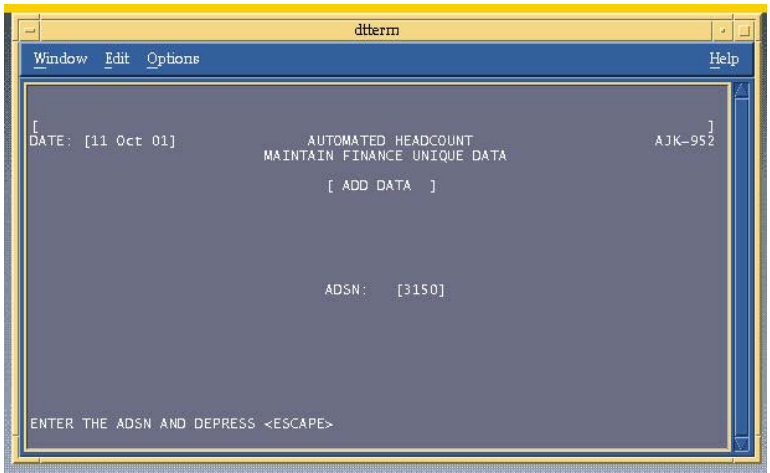


Figure 8.5-11 Maintain Finance Unique Data AJK952

PURPOSE: Use this menu to enter the appropriate UIC you wish to add.

HOW TO USE THIS SCREEN:

Step 1 - Enter new ADSN code. Press the “Esc” key when done.

RESULT:

Screen AJK-946 will be displayed. See figure 8.5-12.

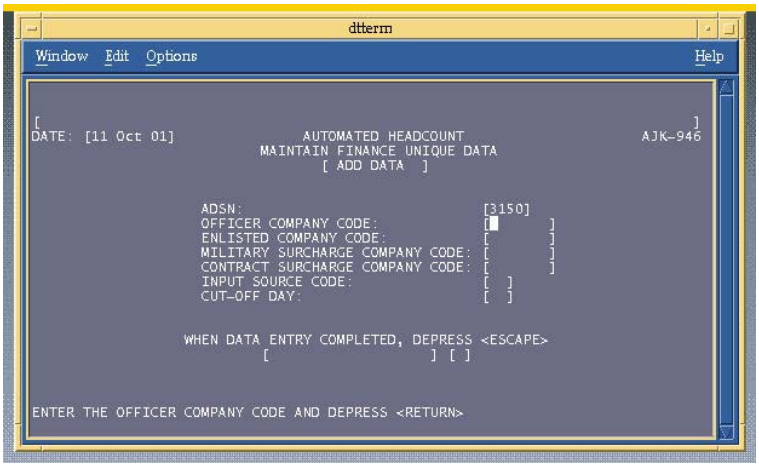


Figure 8.5-12 Maintain Finance Unique Data AJK946

PURPOSE: Use this screen to add data to your new ADSN record.

HOW TO USE THIS SCREEN:

1. Required entries:

Army Disbursing Station Number (ADSN):
Officer Company Code:
Enlisted Company Code:
Military Surcharge Company Code:
Contract Surcharge Company Code:
Input Source Code:
Cutoff Day:

2. Press the “Esc” key and figure 8.5-13 will appear

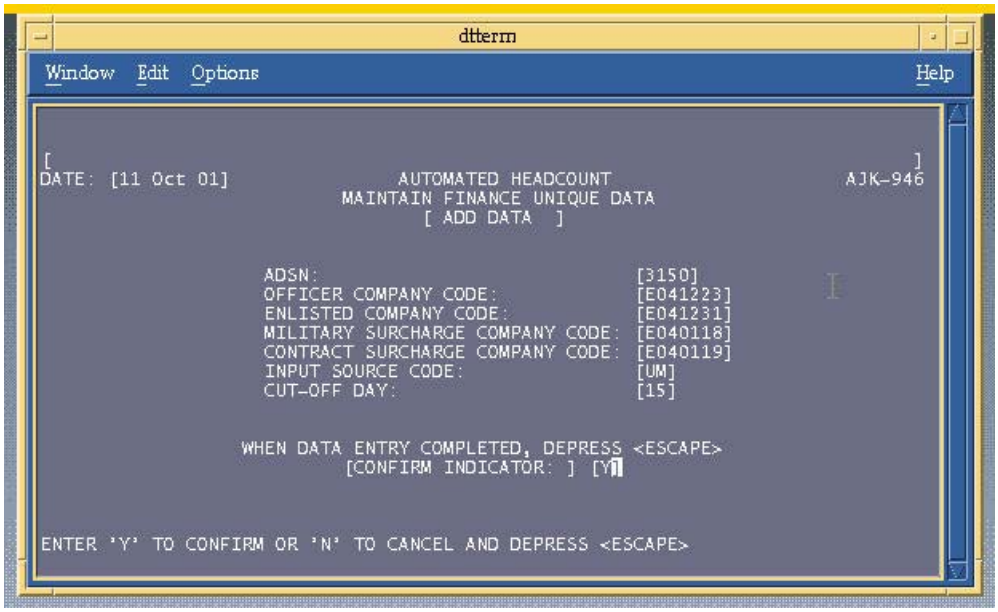


Figure 8.5-13 Maintain Finance Unique Data AJK946

3. Confirm entry by typing “Y” and pressing the “Esc” key.

RESULT: The system returns to the Finance Unique Data Command Menu (AJK951) after the RETURN key is pressed. See Figure 8.5-10

If Option B - Modify is selected, the Maintain Dinning Facility Data, Screen AJK-952, will be displayed. See Figure 8.5-14

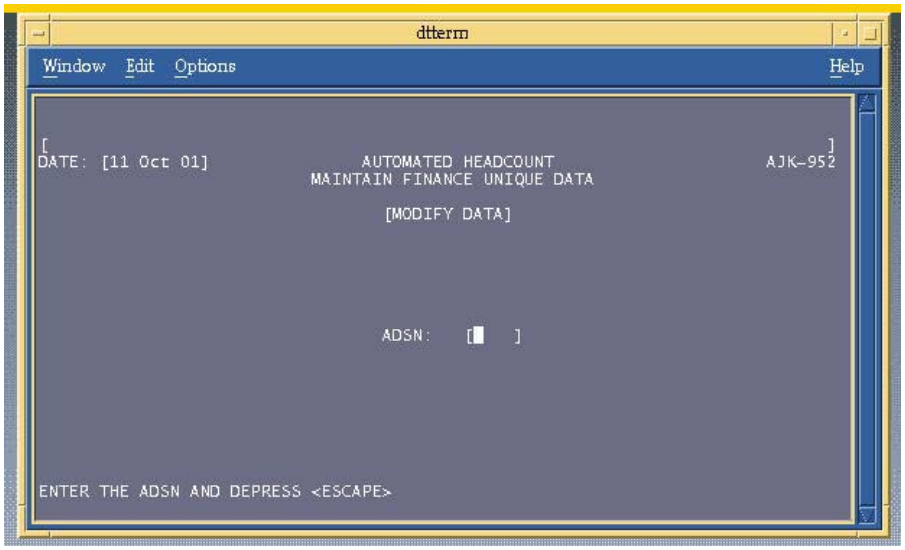


Figure 8.5-14

Maintain Finance Unique Data AJK952

PURPOSE: Use this menu to modify ADSN data.

HOW TO USE THIS SCREEN:

Step 1 - Enter the appropriate UIC code and press the “Esc” key

RESULT:

Screen AJK-946 will be displayed. See figure 8.5-15.

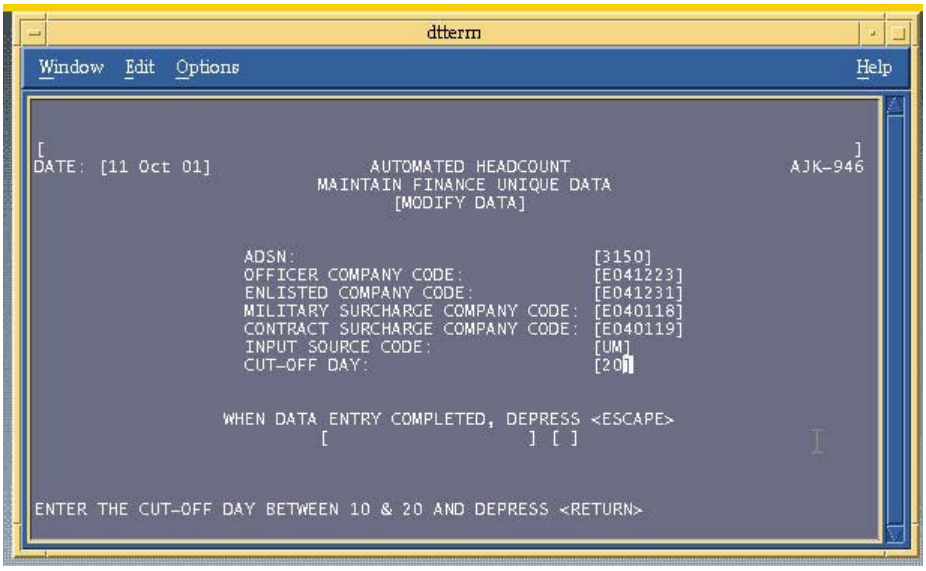


Figure 8.5-14 Maintain Finance Unique Data AJK946

PURPOSE: This screen is used to modify the Finance Unique Data.

HOW TO USE THIS SCREEN:

1. Make changes as needed to:

   Army Disbursing Station Number (ADSN):
   Officer Company Code:
   Enlisted Company Code:
   Military Surcharge Company Code:
   Contract Surcharge Company Code:
   Input Source Code:
   Cutoff Day:

2. Press the "Esc" key and figure 8.5-16 will appear.

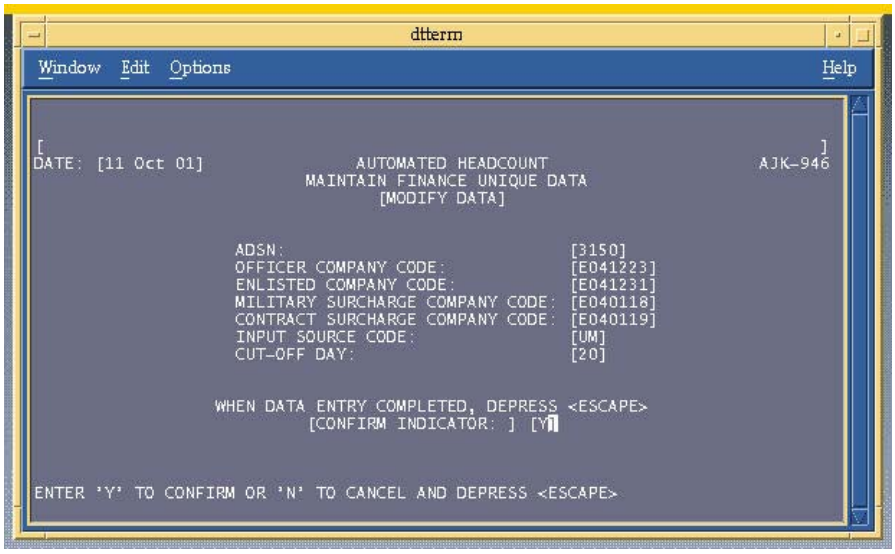


Figure 8.5-16 Maintain Finance Unique Data AJK946

3. Confirm entry by typing "Y" and pressing the "Esc" key.

RESULT: The system returns to the Finance Unique Data Command Menu (AJK951) after the RETURN key is pressed. See Figure 8.5-10

If Option B – Delete is selected, the Maintain Finance Unique Data, Screen AJK-952, will be displayed. See Figure 8.5-15

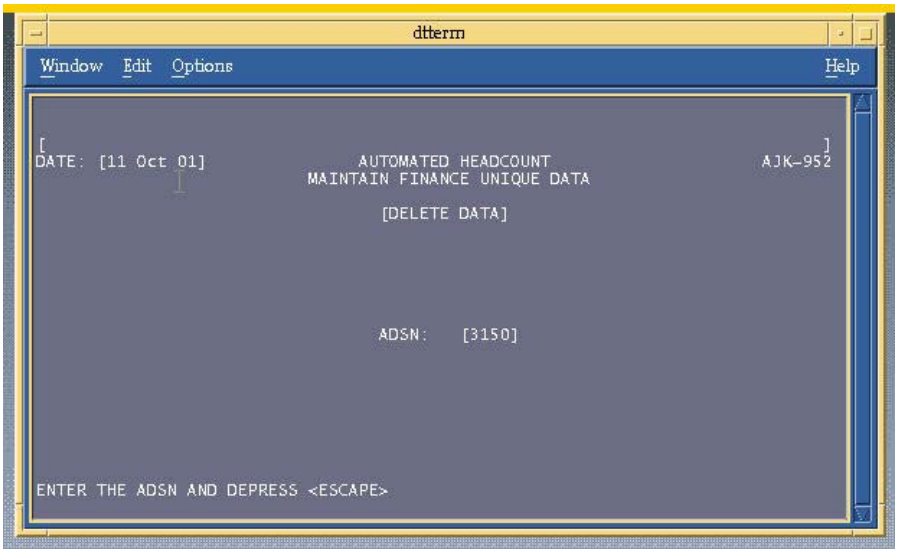


Figure 8.5-17 Maintain Finance Unique Data AJK952

PURPOSE: Use this menu to delete ADSN data.

HOW TO USE THIS SCREEN:

Step 1 - Enter the appropriate ADSN code and press the “Esc” key

RESULT:

Screen AJK-946 will be displayed. See Figure 8.5-18.

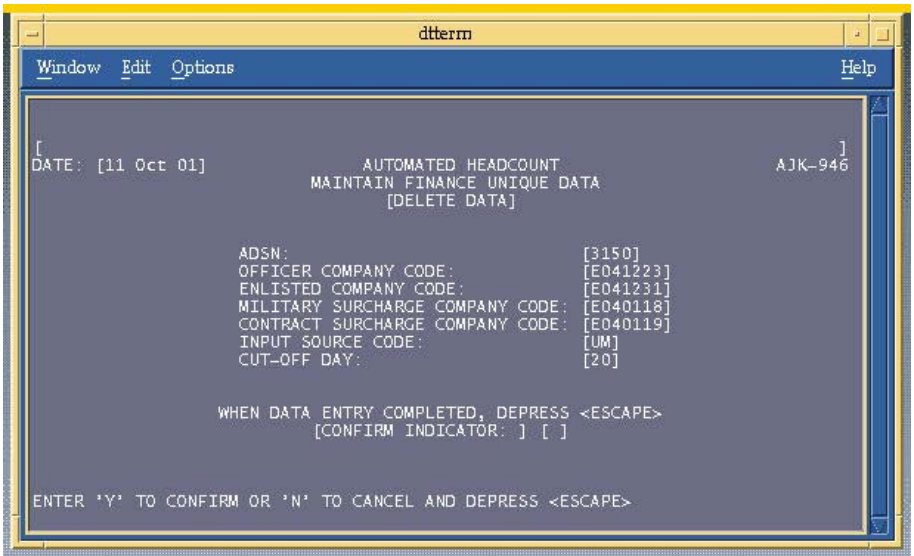


Figure 8.5-18 Maintain Finance Unique Data AJK946

Confirm record deletion by entering “Y” in the Confirm Indicator and press the “Esc” key

RESULT: The system returns to the Finance Unique Data Command Menu (AJK951.)
See Figure 8.5-10.

9. SYSTEM SECURITY

9.1 Mode of Operation

In accordance with (IAW) DOD Instruction 5200.40 and AR 380-19. The system sensitivity designation will be unclassified-sensitive (US2). Mode of operation and accreditation utilizing the generic plan will be submitted by the host-site (Fort Lee).

9.2 Security Responsibilities

- Information System Security Officer (ISSO).

  An ISSO will be appointed for each AIS. The following is a list of duties to be performed by the ISSO:

  - Ensure systems are operated and maintained IAW DOD Instruction 5200.40 and AR 380-19.

  - Ensure users have the required personnel security clearance, authorization, and the need-to-know. Include all users, operators, and managers associated with the system in all security training and awareness programs.

  - Conduct threat and vulnerability assessments to enable the commander or management to properly assess risks and determine effective measures to manage such risks.

  - Prepare, distribute and maintain plans, guidance instructions, and SOP concerning the security of system operations.

  - Immediately report to the facility manager and Installation System Security Manager (ISSM) any attempts to gain unauthorized access to information or suspected defect that could lead to unauthorized information disclosure.

  - Prepare or oversee the preparation of the site accreditation documentation.

  - Establish a system for issuing, protecting, and changing system passwords.

  - Ensure a Terminal Area Security Officer (TASO) is appointed for each terminal not under the direct control of ISSO and assures that TASO performs the duties listed below:

- Terminal Area Security Officer.

  The TASO will perform the following duties, as required by the ISSO:

  - Issue written instructions specifying terminal security requirements and operating procedures.

  - Establish each terminal user identity, need-to-know, level of clearance, and access authorization commensurates with the data available from that terminal.

  - Establish procedures to restrict entry of unauthorized transaction data.

  - Monitor local compliance with security procedures.

  - Assist the host system, ISSO, provide system security.

  - Report actual or suspected security violations or incidents to the host-installation ISSO.

9.3 Software Security

Safeguards will be implemented into the AFMIS software to protect against compromise, subversion, or unauthorized manipulation as described below:

- Software that has been specifically developed or approved for use, or has been purchased or leased by an authorized U.S. Government representative will be used with any Army AIS.

- Valid documentation will support software used by programming, operations, and user personnel. Only personnel performing official duties should be allowed access to this documentation.

- Upon acceptance for operational use software must be kept under close and continuous configuration management controls to ensure that unauthorized changes are not made. A master copy of the software must be safeguarded and never used for actual production operations. Production copies of software should be generated from the master copy, as required. System and application program libraries will be protected and back-up copies maintained.

- Operational software may be modified and maintained only under rigorously controlled conditions requiring verification.

9.4 Hardware Security

Maintenance personnel should be observed during their maintenance operations by individuals with technical expertise to detect obvious unauthorized modifications.

9.5 Physical Security

AIS not having classified files on non-removable media should be kept in a locked office or building during non-duty hours, or otherwise, secured to prevent loss or damage. Users will log-off the computer when leaving the area.

9.6 Procedural Security

- These mechanisms are often most cost-effective and efficient methods of achieving these minimum security requirements. The ISSO oversees generation, issuance, and control of all passwords. Users will not have any control over choosing their passwords, unless such a choice is from one or more randomly generated by the system. The TASO may assist in issuing passwords in his or her respective area. All passwords must be generated and installed on the system by the ISSO, ISSO-approved assistants, or ISSO-approved software.

- AR 380-19 paragraph 4-11 provides a banner that will be included as part of the log-on screen on all computer systems.

- Security on Windows NT 4.0 and Mintronix Dynova P5000 POS.

  To successfully meet account requirements, account policies should be configured to correspond with the following:

  Windows NT 4.0 Account Policies:

Maximum Password Age	Less than or Equal 180 days
Minimum Password Age	Greater than or Equal to 1 day
Minimum Password Length	Greater than or Equal to 8
Number of Passwords stored in history	Greater than or Equal to 24
Account Lockout	Enabled
Lockout Duration	Forever
Bad Logon Attempts	Less Than or Equal to 3 attempts

To successfully meet audit requirements, audit policies should be configure to

correspond with the following:

Windows NT 4.0 Audit Policies

Logon and Logoff	Success and Failure
File and Object Access	Success and Failure
Use of User Rights	Success and Failure
User and Group Management	Success and Failure
Security Policy Changes	Success and Failure
Restart and System Shutdown	Success and Failure

To successfully meet the user requirements, user policies should be configure to correspond with the following:

Windows NT 4.0 Users

Administrator Account	Renamed
Guest Account	Renamed
Guest Account	Disable
Password Requirements	All Accounts
Password Expiration	All Accounts
Dormant Accounts	Disable after Thirty Days

To successfully meet security requirements the following Service Packs, Patches, virus protection software and Hotfixes will need to be installed:

Windows NT 4.0 Service Pack Installations

Microsoft Windows NT 4.0	Service Pack 6A
Microsoft Windows NT 4.0	C2 Hotfix

- Security on UNIX Base Operating Systems.

Unix based hosts need to meet the minumum required setting relating to account policies.

Maximum Password Age *	Less than or Equal 180 days
Minimum Password Age *	Greater than or Equal to 1 day
Minimum Password Length	Greater than or Equal to 8
Number of Passwords stored in history	Greater than or Equal to 24
Account Lockout	Enabled
Lockout Duration	99999
Bad Login Attemps	Less Than or Equal to 3 Attempts
Guest Accounts	Disable
Passwords Requirement	All Accounts
Passwords Expiration	All Accounts
Dormant Accounts	Disable After 90 Days

Note: * Indicates parameters can be changed using the SCOADMIN tool selecting the " Account Manager " option.

- UNIX Operating Systems Ports and Services.

  Any existing and all future operating system installations must be carefully audited and any non-essential ports and services must be disable. At a minimum the following should be considered:

DISABLE UNDER ALL CIRCUMSTANCES	STRONGLY ENCOURAGED TO DISABLE	DISABLE WHEN NOT REQUIRED FOR NORMAL OPERATION
Echo, daytime, chargen, finger, discard, qotd, bootp, gopher, news	Unix rcommands (rlogin, rexec, etc), replace telnet with ssh	Unused services

10. STORES INTERFACE

10.1 General

The Department of Defense (DOD) Food Inventory Demonstration Project, conducted during FY 95 by all services, was proven efficient in providing subsistence by contracting with commercial vendors to deliver directly to dining facilities. Congress and DOD mandated the project be converted to the Subsistence Prime Vendor Program with full Continental United States (CONUS) implementation by early FY 97. In order to implement Prime Vendor, Army Food Management Information System (AFMIS) was modified to interface with a desktop personal computer known as the Subsistence Prime Vendor Interpreter (SPVI). The Defense Logistics Agency (DLA), Defense Supply Center - Philadelphia (DSCP), provides the SPVI hardware and associated training, installation, software, and maintenance to each AFMIS site. The SPVI translates AFMIS generated orders into commercial Electronic Data Interchange (EDI) transactions acceptable by commercial vendors. EDI receipts and catalog data also pass between AFMIS and the SPVI. SPVI Catalog updates are provided by the vendor through DSCP.

The following diagram shows the relationship among the various systems involved in the program.

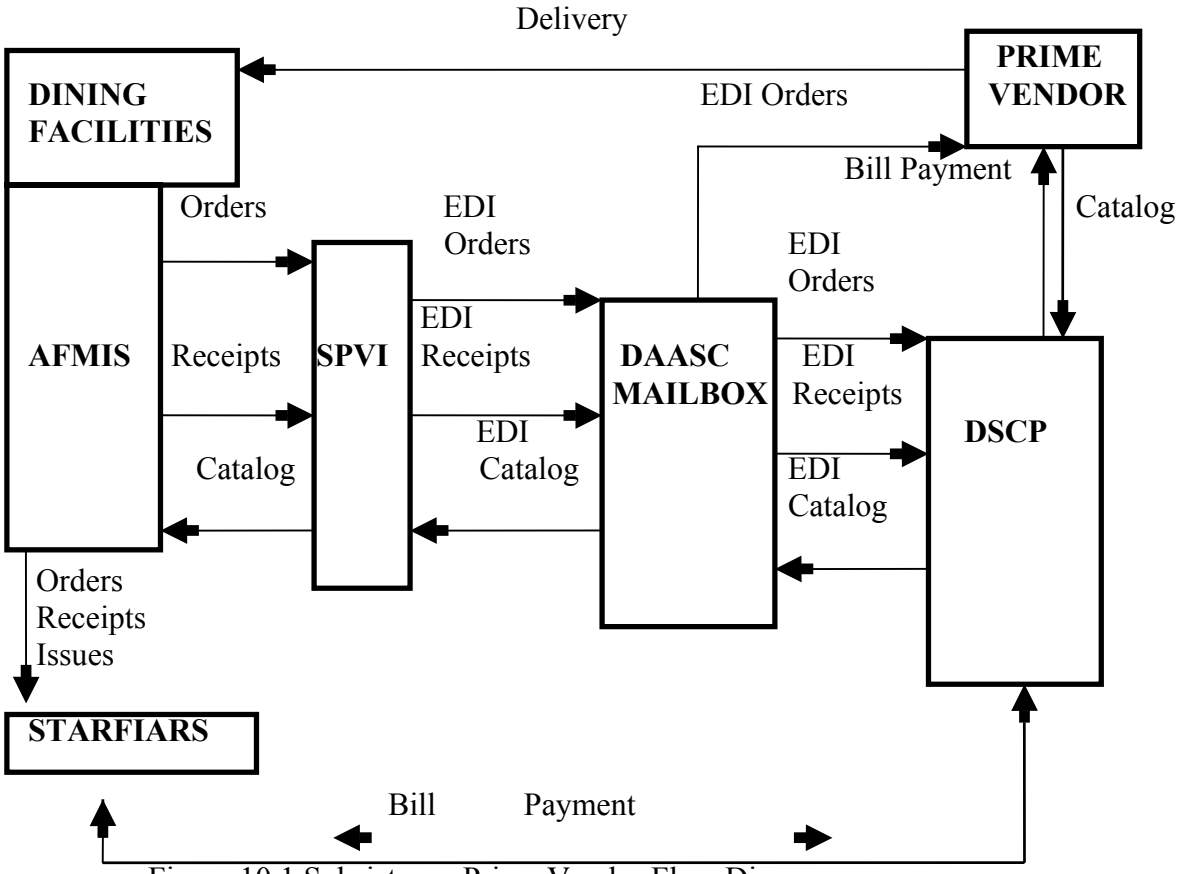


Figure 10.1 Subsistence Prime Vendor Flow Diagram.

DSCP will ship the SPVI to the POC designated by the installation. Upon receipt of the SPVI, insure that the PC's CPU, Monitor, and Printer have been received. Notify DSCP if all are not received. Do not remove any item from the original box and packing unless notified by DSCP to do so. Do not "Stack" the monitor or other items on top of the CPU.

10.2 Purpose.

The purpose of this booklet is to provide the SA with step-by-step procedures to successfully implement and maintain the AFMIS/PV operation. SA SPVI operations are contained in the DSCP-published STORES NT documentation.

10.3 Responsibilities.

The Army Food Management Information System (AFMIS) system administrator / database administrator (SA/DBA) must provide support for the AFMIS / Prime Vendor (PV) environment. This requires that the AFMIS SA be familiar with operations of the AFMIS system (Compaq 1600 SCO UNIXWARE and the PV interface. The AFMIS/PV SA will be required to perform a variety of duties necessary to process the AFMIS/PV data. The following document will provide the necessary steps for both implementing and performing the daily operations necessary to support the AFMIS/PV system. The STORES NT documentation and the Prime Vendor Users Guide should be used in conjunction with this reference.

10.4 AFMIS/PV Operating Environment.

Located in the SA office is the bulk of the AFMIS/PV hardware. The transfer of the daily orders and receipts and the Defense Personnel Support Center (DSCP) catalog data between the AFMIS server and the SPVI is done via the Defense Data Network (DDN) using FTP software. The upload and download of data is done by the SA performing various procedures. These procedures are described in this manual and in the STORES NT documentation.

10.5 DAILY OPERATING PROCEDURES

The following is a general overview of the sequence of operations for the PV procedures and who should perform them.

a. After an updated prime vendor catalog has been received from DSCP and **before** generating PV orders through the execution of the "send PV data to STARFIARS/SPVI" process, the DSCP Catalog Updates must be downloaded to the SPVI, then from the SPVI to the AFMIS server. (SA)

b. After the SA downloads the DSCP Catalog Updates to the AFMIS server, execute the AFMIS-SPVI Catalog Compare options A through D. (TISA)

c. Create shopping lists.

1) On-Line: Shopping lists must be created by the on-line dining facilities and passed to the Troop Issue Subsistence Activity (TISA) through the execution of End-of-day (EOD) before they can be processed. The TISA can create the shopping list for the dining facilities. (DFO/TISA)

2) Off-Line: Create PV-supported off-line dining facility and TISA Warehouse (PV) shopping lists (requirements) through the TISA Other Issues Process. (TISA)

d. Print the Warehouse Inventory Status Report. (TISA)

e. Execute the AFMIS-SPVI Order Check, option E on the AFMIS-SPVI Catalog Compare Command Menu. (TISA)

f. Execute the create prime vendor orders process (TISA).

g. Adjust orders as needed (TISA).

h. Confirm orders as necessary. (TISA)

i. Execute receipts as necessary. (TISA/DFO)

j. Execute send PV data to STARFIARS/SPVI. (TISA)

k. Transfer orders and receipts from the AFMIS server to the SPVI PC. (SA)

l. Execute End-of-Day (EOD) processes. (SA)

NOTE: The PV "send" process cannot be run after the End of Day process.

10.6 Detailed Daily Procedures.

This section will provide, in detail, the steps necessary to perform the various Prime Vendor operations as they apply to AFMIS and the AFMIS system. These operations are to be performed by the AFMIS/PV SA.

10.7 SPVI Catalog download to AFMIS.

The SPVI Catalog is downloaded to AFMIS to either update AFMIS MIF prices and to accomplish the AFMIS MIF/SPVI Catalog compare process. Since the SPVI Catalog is updated each Monday, the updated SPVI version must be transferred to AFMIS in order to have current information. The SPVI Catalog can be downloaded from the SPVI electronically using the FTP transfer utility as described in the STORES NT documentation. After the catalog has been transferred, the Catalog Reload process and "catalog compare" reports may be executed by a TISA operator.

10.8 Executing the "send PV data to STARFIARS/SPVI" Process.

This process is run from the AFMIS TISA menu on the server on an as needed basis. This process should be run by the TISO but **must** be run prior to executing the End of Day (EOD) process and cannot be run on the same day (date) after the EOD. This process will create order and receipt data that is to be transferred to DSCP via the SPVI. The "send" process may be run several times during the day, **but**, the data files (AR files) must be moved between uploads to avoid duplication if the files have been transferred to the SPVI.

Note: At this time it is mandatory that the users DO NOT run any Issue or PV processes while the "send" process is running.

a. Three reports may be generated by the "send" process. These reports should be removed from the printer and distributed to the TISO. The reports are as follows:

PCN	TITLE
AJK-AG1	Prime Vendor Order Report
AJK-AG2	Prime Vendor Receipts Report
AJK-AG3	Prime Vendor Receipt Reversal Report

b. After successful execution of the "send" process, Order/Receipt data must be immediately loaded to the SPVI for DSCP. (See section 3.2.4 for procedures.)

10.9 Loading Order/Receipt Data From the AFMIS server to the SPVI.

This process is performed immediately after the "send PV data to STARFIARS/SPVI" process has completed. The Order/Receipt data created by the "send" process will be loaded from the 3B2 to the SPVI for transmission to DSCP as described in the STORES NT documentation.

a. Verify that there is data to be sent to DSCP by listing AR data created by the pvbatch process for today's Julian date (AR<julian day>*). Today's Julian date can be determined using the date command.

```
afmis> date +%j
245

afmis> ls -l AR245*

-rw-rw-rw-  1 afmis   afmis      2447 Jul 1 10:46 AR245.ORD
-rw-rw-rw-  1 afmis   afmis      1846 Jul 1 10:47 AR245.REC
```

If either file has a file size of zero (0), verify with the TISO that the order/receipt data is not being sent for this date.

b. Transfer the order and receipt files from the AFMIS server to the SPVI PC as described in the STORES NT documentation.

NOTE: It is important to send the proper Julian day's work!

c. The AR files, generated by the "send" process, need to be moved to a backup directory. This step is important because subsequent executions of the pvbatch on the same RDD may create duplicate orders/receipts since the program appends to the AR file!

1) A directory /work/acct/afmis/backup.pv should exist. If it does not exist, steps (a) and (b) will have to be executed a single time to create the directory. Once the directory is made, it will not have to be created again. If the directory exists, or once it has been created, continue to step 2.

(a) Change to the afmis home directory.

afmis> **cd** <Return>

(b) Make the backup.pv directory.

afmis> **mkdir backup.pv** <Return>

2) Change to the directory containing the PV executables.

afmis> **cd /tisa/pv** <Return>

3) Move the AR files to the backup.pv directory.

afmis> **mv AR<julian day>* $HOME/backup.pv** <Return>

Where <**Julian day**> is the Julian Day for today.

afmis> **mv AR245* $HOME/backup.pv**

10.10 DFO Shopping List to TISA Communications

Normally, the AFMIS EOD cycle handles the transfer of DFO shopping lists to the TISA. On certain occasions, such as missed dates by the DFO, it may be necessary to execute a transfer of a shopping list. If necessary, the SA can force a transfer of shopping lists by executing the ***pv_comm*** utility.

a. Login as afmis.

b. Change directory to the PV executable's directory.

afmis> **cd /tisa/pv**

c. Execute the forced communications utility script ***pv_comm***.

afmis> ***pv_comm***

All shopping lists marked as "ready to send to TISA", by the DFO, will be transferred to the TISA.

10.11 HELPFUL STRUCTURED QUERY LANGUAGE (SQL) SCRIPTS FOR THE TISA

The following section will provide various Structured Query Language (SQL) scripts that the SA can execute to provide certain information helpful to the TISO but are not available through the AFMIS programs. To execute these SQLs, the SA must have the basic knowledge of SQL on the AFMIS server. An explanation of what each SQL will do is listed in french brackets {} prior to each SQL. These comments can be typed in the actual SQL, by the SA, but the brackets must be included.

SQL Syntax.

a. { Listing of all non-DVD MCNs (items that have an alpha character in position seven of the NSN) with a source code other than "A", "B", or "C".}

```
SELECT nsn, item_nm, ui
FROM mif
WHERE nsn[7] BETWEEN "A" AND "Z"
  AND src_cd NOT IN ("A", "B", "C")
ORDER BY nsn
```

b. { List of all FSC (NSNs that begin with "0000") items on the RIN with the name from the MIF and the number of recipes that contain that item. }

```
SELECT mif.item_nm, rin.nsn, COUNT(*)
FROM rin, mif
WHERE rin.nsn[1,4] = "0000" AND rin.nsn = mif.nsn
GROUP BY rin.nsn, mif.item_nm
ORDER BY rin.nsn
```

c. { This SQL is known as the "mismatch SQL". This SQL lists nsn's that are on the RIN but not on the MIF. }

```
SELECT nsn, COUNT(*)
FROM rin
WHERE nsn NOT IN
    (SELECT nsn FROM mif)
GROUP BY nsn
ORDER BY nsn
```

d. { List of NSNs on the RIN and on the REF but not on the MIF }

```
SELECT rin.nsn, COUNT(*), ref.item_nm
FROM rin, ref
WHERE rin.nsn NOT IN
        (SELECT nsn FROM mif)
            AND rin.nsn = ref.nsn
GROUP BY rin.nsn, ref.item_nm
ORDER BY rin.nsn
```

e. Flag all items that are not on the SPVI catalog, except operational rations, for deletion:

```
UPDATE mif
SET del_flag = "D"
WHERE nsn[1,4] != "8970"
AND nsn NOT IN
(SELECT dnsn FROM pvmif)
```

f. List all stock numbers from field menus that are not on the prime vendor catalog:

```
SELECT UNIQUE nsn, COUNT(*) FROM mmr
WHERE NSN NOT IN
(SELECT dnsn FROM pvmif)
GROUP BY 1
```

g. Replace old stock numbers with new stock numbers on field menus:

```
UPDATE mmr
SET <old NSN> = <new NSN>
```

NOTE: Make sure issue factors are correct, based on new units of issue.

APPENDIX A

AFMIS Information Sheet

Note: The following information is required to complete the installation of the AFMIS Compaq Proliant 1600 Server, Proliant 800 Workstation(s), and the Lexmark Optra Series Printer(s). The DOIM may be able to assist you with the internet protocol (ip) address information needed below. Hostname may be dictated by local DOIM, if not, here is an example of a hostname: "AFMIS-SILL". Here is an example of a domain name: "sill.army.mil".

AFMIS Compaq Proliant 1600 Server

1. Hostname or Computer Name (Case Sensitive): _____
2. Domain Name: _____
3. IP Address: ___-___-___-___
4. Subnet Mask: ___-___-___-___
5. Gateway IP Address: ___-___-___-___
6. DNS Server IP Addresses (up to 3): ___-___-___-___
   ___-___-___-___
   ___-___-___-___

AFMIS Compaq Proliant 800 Workstation(s)

1. Hostname or Computer Name: _____
2. Domain Name: _____
3. IP Address (check with local DOIM if DHCP will be utilized): ___-___-___-___
4. Subnet Mask: ___-___-___-___
5. Gateway IP Address: ___-___-___-___
6. DNS Server IP Addresses (up to 3): ___-___-___-___
   ___-___-___-___
   ___-___-___-___

Lexmark Optra M410/01255 TCP/IP Printer(s)

1. Printer Name (up to 12 characters): _____
2. IP Address: ___-___-___-___
3. Subnet Mask: ___-___-___-___
4. Gateway IP Address: ___-___-___-___

Call CAO for further assistance: DSN 687-1051 Comm: 804-734-1051.

APPENDIX B

SCO OPERATING SYSTEM AND INFORMIX LOADING PROCEDURES

1. Insert the UnixWare 7® Installation Diskette Volume **1** of **2** in drive.

2. Boot System.

3. Select Language:
   Highlight **Proceed with instructions in English.**
   Press <**Enter**>.

4. When prompted:
   Insert the UnixWare 7® Installation Diskette Volume **2** of **2**.
   Press **<Enter>**.

5. You will be prompted for the information needed to install your system.
   Make certain an asterisk (*****) is in appropriate selection.
   Some defaults are provided.
   Press **<F10>** to continue.

6. Choose Zone for the system:
   Make certain an asterisk (*****) is in appropriate selection.
   Americas (Latin-1)
   Press <**F10**>.

7. Choose Locale:
   C (English)
   Press <**F10**>.

8. Chose Keyboard:
   United States
   Press <**F10**>.

9. System License:
   Input the following: (** this will change for each installation site **)

License Number:	**DEM012325**
License Code:	**oniankbs**
License Data:	

Press <**F10**> when completed.

10. Insert Host Bus Adapter (HBA) Diskette 7.1.1
    Press <**F10**>.

11. Proceed with installation
    Press <**F10**>.

12. Load system hardware drivers
    Select **Do Not Enter the DCU** (auto configure drivers)
    Press <**F10**>.

13. Enter node name for your system in window:
    scp13test
    Press <**F10**>.

14. Highlight "Install From CD-ROM"
    Press <**F10**>.

15. Place the UnixWare ® 7 Installation CD-ROM
    Disk **1** of **3** in drive.
    Press <**Enter**> to continue.

16. Disk Configuration: The following will appear:
    Disk 1: /dev/rdsk/c0b0t0d0s0: Use whole disk for UNIX
    Press <**F10**>.

17. On next screen select customize filesystems and slices:
    Press <**F10**>.

18. Filesystems and raw disk slices

    Down arrow or TAB to change type, size and disk.
    Press <**F2**> to change items below marked with (*)
    Press <**Enter**> to update.

Filesystem	Description	Type	Size
/	Root File system	vxfs	3048
/stand	Boot File system	bfs	20
/dev/swap	Swap Slice	slice	640
/dev/dump	Dump Slice	off	
/home	User File system	vxfs*	500
/home2	2nd User file system	vxfs*	4193

NEW NOTE: Change /tmp to vxfs & 100 for the size

Press <**F10**> when completed.

19. Customize Surface Analysis, Boot block, Disk geometry options:
    Choose **Use defaults disk options.**
    Press <**F10**>.

20. Choose System Profile:
    License-based **Defaults**: 315.83 MB
    Press <**F10**>.

21. Select Network Adapter.
    Choose **"use the detected adapter shown above"**
    Press <**F10**>.

22. Configure Networking Hardware
    Accept defaults, Press <**F10**> to continue.

23. Configure TCP/IP Networking:
    Input the following information (will change each installation site):

System IP Address:	**155.154.112.40**
System Netmask:	**255.255.255.0**
Broadcast Address:	**155.154.112.255**
Default Router:	**155.154.112.254**
Domain name:	**Sdcl.Lee.army.mil**
Primary DNS Address:	**132.159.126.16**
Other DNS Address:	**198.49.185.110**
Other DNS Address:	**155.154.2.226**
Frame Format:	**ETHERNET_II**

    Press <**F10**> to continue.

24. Configure IPX Networking Protocol:
    Press <**F8**> to Defer.

25. NIS Configuration:
    Press <**F8**> to Defer.

26. Set date and time:
    Press <**F10**> to continue.

27. Security level:
    Highlight **Traditional**

Press <**F10**> to continue.

28. System Owner name:
    Input the following,

System owner name:	**scp13test**
System owner login name:	**scp13test**
System owner user ID number:	**101**
System owner password:	**scp1300**
Repeat password:	**scp1300**
Press <Enter>	

    Press <**F10**> when completed.

29. Root password:
    Enter - **scp1300**
    Repeat password – **scp1300**
    Press <**Enter**>
    Press <**F10**>.

30. License Agreements:
    Press <**F10**> to accept.

31. Press <**F10**> to begin software installation.
    (This will take approximately 30 minutes to install).

32. When prompted to reinsert the HBA diskette, insure diskette is in the drive.
    Press <**Enter**> to complete installation.

33. After installation, make certain CD-ROM and floppy drive is empty.
    Press <**Enter**> to restart the system.

34. When system comes back up:
    Select Mouse Type: **PS/2 – compatible**
    Press <**F10**>.

35. When prompted:
    select number of buttons: **2**
    Press <**F10**>.

36. Mouse Configuration Test
    Press <**any key**> to continue.

37. Click right or left mouse button when prompted.

38. Load Unixware Installation CD-ROM
    Disk **2** of **3** when prompted
    Press <**F10**> to continue.

39. Selecting products to install:
    Accept the defaults (*),
    in addition Press <**space bar**> to select
    COMPAQ PCI Hot-plug Driver Update
    Press <**Enter**> to install.

40. The following products will be installed (the following will be reflected on the screen): Installation is approximately 30 minutes.

COMPAQ PCI Hot-plug Driver Update Unixware Documentation Unixware Manual Pages Netscape Communicator 4.61 for UnixWare 7 JDK 1.1.7 for SCO X11R6 Contributed X Clients X11R6 X Clients X11R6 Graphics Drivers X11R6 X Server OSF Motif 1.2.5 Runtime Environment X11R6 Base X Runtime System Audio Subsystem

NOTE: If the WebTop package is part of the default options, DESELECT WebTop before the next step

Press <**F10**> to continue.

41. Insert the Unixware Installation CD-ROM
    Disk **3** of **3** when prompted,
    Press <**F10**>.

42. Selecting Products: Press <**spacebar**> to remove (de-select) the following:

ARCserveIt 6.6 from Computer Associates RealNetworks RealPlayer 5.0 RealNetworks RealAudio 3.1 Encoder RealNetworks G2 Server

SCOVisionFS 3.0 will be the only remaining product marked with an asterisk.

Press <**Enter**> to install.

43. VisionFS options: Press <**Enter**> three times to accept the following:

SCO VisionFS 3.0	YES
SCO TermLite 1.07	YES
<Apply>	

44. Press <**Y**>, then <**Enter**> to accept the options.

45. You will see the following products successfully installed:

Status	Package Name
Succeeded	SCO VisionFS 3.0
Succeeded	SCO Termlite 1.07

Press <**Enter**> to continue.

46. You will receive the following message: The following product (SCO VisionFS 3.0 successfully installed).
Press <**F10**>

47. Finalizing system settings:
Simply wait while the kernel is rebuilt and the system reboots.

Installing INFORMIX

1. Log in as root:
   enter password: **scp1300**

2. Click the arrow on top of the yellow SCO window to get the pull down window.

3. Click on **SCO ADMIN.**

4. Down arrow to select **Filesystem Manager,**
   press <**Enter**> or double click mouse to select.

5. Select mount point for /home2.
   Highlight **/dev/dsk/c0b0t0d0sc.**
   Click **M**ount on the pull down menu.
   Select Mo**d**ify Mount Configuration.

6. Change mount point from "/home2" to " /informix"
   click OK.

7. Exit from Filesystem Manager.
   Click Hos**t**
   select e**x**it.

* Create groups and account for INFORMIX

1. Double Click **Account Manager.**

2. Click **V**iew
   Select "B**y** Groups".

3. Click on pull down **G**roups
   Select "Add **N**ew Groups…"

4. Type the name "**informix**" in window "Group Name"
   Click OK.

5. Pull down **V**iew
   select "By **U**sers**".**

6. Pull down **U**sers
   Select "Add **N**ew User …"

7. Enter **informix** in Login window
   Click OK.

8. Enter a new password – "**informix**" (nothing will display on screen)
   Confirm password – "**informix**"
   Click OK.

9. Click on "**U**ser …"
   Click on **M**odify

10. Click on "Change Group Membership …"

11. Down arrow in "OTHER GROUP" window until "**informix**" group appears
    Click to highlight.

12. Click **<<**Add button to move **informix** to "**Member of**" window
    click OK.

13. Click OK to accept changes.

14. Exit the session.
    Click Hos**t**
    Click E**x**it.

15. Click **F**ile
    Click E**x**it

* **Set up INFORMIX Account**

1. (Hold the ctrl, alt, F2 key simultaneously to get vt02 screen).

2. Log in session as **informix**
   Password: informix

3. vi file .kshrc located in /home/informix add the following lines:

```
INFORMIXDIR=/home/informix/programs
PATH=${INFORMIXDIR}/bin:${PATH}
export INFORMIXDIR PATH
```

4. Create the informix program directory, type:

   mkdir /home/informix/programs

5. Type in **Exit.**

* Installing CD-ROMs

1. Install the following CDROMs:

Client SDK
4GL RDS
4GL
SQL
SE

2. Log in as root.
   Enter root password: **scp1300**

3. Set environment variables for installation by typing the following at the root prompt (#):

```
INFORMIXDIR=/home/informix/programs
PATH=${informixdir}/bin:${PATH}
export INFORMIXDIR PATH
```

4. Create a directory named "cdrom" at root.
   mkdir /cdrom

5. Insert the CD-ROM labeled **CLIENT SDK**.

6. Establish mount point
   mount –r –F cdfs /dev/cdrom/cdrom1 /cdrom

7. Change to the directory /home/informix/programs.

8. Extract data from cdrom.
   cpio –icvdumB –I /cdrom/CLISDK/CLISDK.CPI

9. To execute the installation command, type:
   ./installclientsdk

10. When prompted with installation info type: "NO" and press <**Enter**>.

11. When prompted enter the serial number and the serial number key.

12. After the installation is completed **unmount** the filesystem.
    umount /cdrom

13. Insert **the** CD-ROM labeled **4GL RDS.**

14. Establish mount point:
    mount –r –F cdfs /dev/cdrom/cdrom1 /cdrom

15. Make certain you are still in /home/informix/programs.

16. Extract data from the CD-ROM :
    tar xvf /cdrom/4gprt.tar

17. Execute the installation command:
    ./install4gprt

18. Enter the **serial number** and the **serial number key** when prompted.

19. After the installation is completed **unmount** the filesystem.
    umount /cdrom

20. Insert the CD-ROM labeled **INFORMIX 4GL.**

21. Establish the mount point:
    mount –r –F cdfs /dev/cdrom/cdrom1 /cdrom

22. Make certain you are still in /home/informix/programs.

23. Extract data from the CD-ROM:
    tar xvf /cdrom/4glrt.tar

24. Execute the installation command:
    ./install4glrt

25. Enter **serial number** and **serial number key** when prompted.

26. After the installation is completed **unmount** the filesystem.
    umount /cdrom

27. Insert the CD-ROM labeled **INFORMIX SQL**.

28. Establish the mount point:
    mount –r –F cdfs /dev/cdrom/cdrom1 /cdrom

29. Make certain you are still in /home/informix/programs.

30. Extract data from cdrom:
    tar xvf /cdrom/sqlrt.tar

31. Execute the installation command:
    ./installsqlrt

32. Enter **serial number** and **serial number** key when prompted.

33. After the installation is completed **unmount** the filesystem.
    umount /cdrom

34. Insert CD-ROM labeled **INFORMIX SE.**

35. Establish mount point:
    mount –r –F cdfs /dev/cdrom/cdrom1 /cdrom

36. Make certain you are still in /home/informix/programs.

37. Extract the data from cdrom:
    cpio –icvdumB –I /cdrom/se.cpi

38. Execute the installation command:
    ./install4gprt

39. Enter the serial number and the serial number key when prompted.

40. After the installation is completed **unmount** the filesystem.
    umount /cdrom

41. Shutdown the system. Change directory to root. Must be at (/) root.

APPENDIX C

How to Change the Hostname on the AFMIS Compaq 1600 Server

NOTE: Please make sure that there are NO users logged into any databases prior to running these instructions. The hostname is case sensitive, so if you want it all caps, make it all caps and be consistent throughout this document.

1. Login as root user on server.

2. Open a terminal window and at the root prompt, type "**cd /etc**" and press enter. Edit the "**hosts**" file and search for the 'old' hostname of the server. Change to the 'new' hostname and then save the file.

3. Go into the **SCO Admin tool**, and then double click on "**Networking**", then double click on "**Network Configuration Manager**".

4. Highlight "**TCP/IP**" and click on "**Protocol**" and then click on "**Modify protocol configuration**".

5. Change **Hostname** field to the 'new' hostname and then click "**ok**".

6. Click on "**Hardware**" and then click on "**Exit**".

7. Click on "**File**" and then click on "**Exit**".

8. Edit the **hostname** in the Informix "**sqlhosts**" file. Open a terminal window and at the root prompt, type "**cd /home/informix/programs/etc**" and press enter. Edit the "**sqlhosts**" file and search for the 'old' hostname of AFMIS server. Change to the 'new' hostname and then save the file.

9. At the root prompt, type "**uname –S *newhostname***" and press enter. **NOTE:** ***newhostname*** is the 'new' hostname of the AFMIS server. It should be identical to what you typed in the /etc/hosts file and what was added in the network configuration manager.

10. Reboot server. Open a terminal window and at the root prompt, type "**shutdown –i6 –g0 –y**" and press enter

APPENDIX D

Parallel Printer Port Configuration on the Compaq Proliant 1600

These instructions require the Compaq SmartStart and Support Software CD-ROM.

1. Login as root user on server.

2. Insert the **Compaq SmartStart and Support Software CD** into the CD-ROM drive.

3. Open a terminal window and at the root prompt, type "**shutdown –i6 –g0 –y**" and press enter. System will shutdown and boot from the Compaq SmartStart CD.

4. Enter the "**Run System Configuration Utility**".

5. Select "**Review or Modify Hardware Settings**" and press enter.

6. Select "**Step 3: View or Edit details**" and press enter.

7. Scroll downward until you see "**Integrated Interfaces**".

8. Highlight "**Parallel**" and press enter.

9. Select "**LPT2**" and press enter.

10. Press <**F6**> to Edit Resources.

11. Set Port Address to **378h-37fh**.

12. Set DMA channel to **1**

13. Set Interrupt to **7**.

14. Press <**F10**> to save changes.

15. Press <**F10**> again to save changes.

16. Select "**Step 5: Save and Exit**" and press enter.

17. Press enter to "**Save the configuration and restart the computer**".

18. Remove the **Compaq SmartStart and Support Software CD** from the CD-ROM drive.

19. Press enter again to proceed with reboot.

20. When system comes up, login as the root user and then go into the **SCO Admin tool**, and then under "**Hardware**", run the "**Device Configuration Utility (DCU)**".

21. Select "**Software Device Drivers**" and press enter.

22. Select "**Miscellaneous**" and press enter.

23. Select "**mfpd Parallel Port**" and use <Space Bar> key to ensure it is enabled.

24. Press <**F5**>.

25. Enter Unit **1**, IRQ **7**, IOStart **378**, IOEnd **37F**, and DMA **1**.

26. Press <**F10**> to apply changes.

27. Press enter to "**Return to Main Menu**".

28. Select "**Return to DCU Main Menu**" and press enter.

29. Select "**Apply Changes & Exit DCU**" and press enter.

30. Exit the SCO Admin tool and then open a terminal window.

31. Rebuild the kernel. At the root prompt, type "**/etc/conf/bin/idbuild –B**" and press enter.

32. Reboot the server. At the root prompt, type "**shutdown –i6 –g0 –y**" and press enter.

33. When system comes up, login as the root user and then add a local printer through the SCO Admin tool, making sure that you select "LPT1" as the connection port. I've included the instructions for adding "**The Lexmark Optra M410 Laser Printer connected to the parallel port on the AFMIS UNIX Server**". Login as root on the AFMIS Compaq Proliant 1600 server using the graphical terminal (not the dumb tube). Either through command line or clicking on tool bar (the up arrow above the tree icon) and selecting **SCO Admin**. Double click on **Printer Setup Manager** to open up the Printer Setup window. Click on **Printer** from the menu on the top of the window and then click on **Add Local Printer** to open the Add a Serial or Parallel Printer Window. In the name field enter **Lexserver**. Tab to the Make/Model field and scroll down the list till you find **HPLaserJetIIIsi (PCL)**.

Ensure that printer driver is highlighted, then make sure connection type is **Parallel** and connection port is **LPT1**. Then click on **OK** to add the printer. Click on **Host** from the menu bar and then click **Exit** to leave the Printer Setup window. Click on **Host** from the menu bar and then click on **Exit** to leave the SCO Admin tool. Logout from system. You have now successfully added a printer called **Lexserver** to the AFMIS Compaq Proliant 1600 server.

NOTE: If you desire to add another type of printer, you will be required to specify the correct printer driver for that printer when you setup the printer in the SCO Admin tool (e.g. okidata321 uses the IBM Proprinter driver, Mannestally 645/661 uses thes FX-850 driver).

APPENDIX E

Directly Connecting the Okidata 321 printer to the AFMIS Compaq Proliant 1600's parallel port

1. Login as root user on server. Open a terminal window.

2. Edit the standard printer driver to prevent banners from being printed when print jobs are run. This is done once and before you create the okidata321 printer on the system. At the root prompt, type "**cd /usr/lib/lp/model**" and press enter. Edit the file called "**standard**". Search for a line **nobanner="no"**. Change "**no**" to "**yes**" and save your changes.

3. Create the Okidata 321 printer device/queue utilizing the **SCO Admin** tool. Double click on **Printer Setup Manager** to open up the Printer Setup window. Click on **Printer** from the menu on the top of the window and then click on **Add Local Printer** to open the Add a Serial or Parallel Printer Window. In the name field enter **okidata321**. Tab to the Make/Model field and scroll down the list till you find **IBM Proprinter**. Ensure that printer driver is highlighted, then make sure connection type is **Parallel** and connection port is **LPT1**. Then click on **OK** to add the printer. Click on **Host** from the menu bar and then click **Exit** to leave the Printer Setup window. Click on **Host** from the menu bar and then click on **Exit** to leave the SCO Admin tool. Logout from system. Ensure printer cable is firmly connected to both the parallel port of the Compaq Proliant 1600 server and the Okidata 321 printer. You have now successfully added a printer called **okidata321** to the AFMIS Compaq Proliant 1600 server's parallel port.

APPENDIX F

How to Change the IP Address on the AFMIS Compaq 1600 Server

1. Login as root user on server.

2. Open a terminal window and at the root prompt, type "**cd /etc**" and press enter. Edit the "**hosts**" file and search for the 'old' IP address of the server. Change to the 'new' IP address and then save the file.

3. Go into the **SCO Admin tool**, and then double click on "**Networking**", then double click on "**Network Configuration Manager**".

4. Highlight "**TCP/IP**" and click on "**Protocol**" and then click on "**Modify protocol configuration**".

5. Change **IP address** and any other IP information if needed (netmask & default router) and then click "**ok**".

6. Click on "**Hardware**" and then click on "**Exit**".

7. If you desire to use Netscape on your server and you have DNS IP addresses, you can now add them at this time, otherwise skip to **Step #10**.

8. Double click on "**Client Manager**". Highlight and then double click on "**DNS Client**". Add DNS IP addresses and then click on "**ok**".

9. Click on "**Host**" and then click on "**Exit**"

10. Click on "**File**" and then click on "**Exit**".

11. Reboot server. Open a terminal window and at the root prompt, type "**shutdown –i6 –g0 –y**" and press enter

APPENDIX G

Installing Kermit95 on a Windows NT 4.0 Workstation

1. Insert KERMIT95 CD in CD-ROM drive

2. Double click MY COMPUTER

3. Double Click CD-ROM drive

4. Double Click on the SCPCD folder

5. Double click folder KERMIT95

6. Double click SETUP.bat

7. Install KERMIT? y

8. Which hard drive to install to? c
   OK? y

9. Directory name - K95? enter
   OK? y

10. Will you use a modem? n

11. Which printer/port as default? 7(Lexmark Optra)

12. You picked 7, Lexmark Optra, Is that OK? y

13. SUMMARY:
    Disk C
    Directory K95
    Modem None
    Printer Lexmark Optra

14. May I install KERMIT95 now? y (if all info is correct)

15. Watch screen for files being loaded

16. A Registration screen will appear with all 3 lines already filled in, click "OK"

17. Close window Kermit95 Registry and Shell Tool

18. Would you like to read the README.txt file? n

19. Would you like to start Kermit95 now? N

20. Press the Enter key to exit SETUP.:

21. Close Window KERMIT95

22. Double click folder KERMIT SCRIPTS

23. From the CD, copy 2 files; Scp13.bat and Scp13.ksc to the K95 Directory(Not to the root of the "C" drive).

24. Highlight Scp13.ksc and right click , choose Properties

25. Remove check for "READ ONLY" , Apply, Close

26. Edit Scp13.ksc, change IP Address line at bottom to local installation AFMIS SCP-13 Server Address.

27. Save file and Exit

28. Highlight Scp13.bat, right click, choose Create Shortcut.

29. New item will appear in window: shortcut to Scp13.bat

30. Right click the shortcut and select the "cut" option.

31. Close all windows

32. On the desktop, right click the "Start" button

33. Select and click the explore option - the window will split on two Screens.

34. Using the mouse, scroll down on the left screen until you see the "WINNT" folder.

35. Click on the "+" sign in front of the folder - it will expand for sub-folders.

36. Search for the "Profiles" folder - click on the "+" sign in front of the folder name - folder will expand.

37. Search for the "AllUsers" folder - click on the "+" sign in front of the folder name - folder will expand.

38. Search for the "Desktop" folder and click on the item.

39. Move the mouse to the right side of the screen (it display the content of the folder - right click the mouse and select "paste" to drop the icon.

40. From the dropdown list the "paste" option - this will place the AFMIS shortcut in the directory and make it available for all users.

41. Right click the newly created ICON on the desktop, choose Rename.

42. Rename the new ICON "TELNET to AFMIS", press enter

43. Highlight and right click the new ICON.

44. Choose Properties

45. Choose Options

46. Change Display Options from “Window” to “Full Screen”, Click “Apply”.

47. Click on “Shortcut” tab, Select Change ICON, Click “OK” to change ICON Window.

48. Choose the ICON that represents communications, Click “OK”.

49. The ICON should now be renamed and changed. Click “OK”.

Installing Kermit95 on a Windows 2000

It appears the Windows 2000 reset the screen buffer height. When this happens, the terminal window height resizes after the Telnet connection and there is no status bar. To solve this you must do the following:

- Install Kermit 95 following the same steps as for Windows NT 4.0
- Right click on the shortcut icon and select properties
- Select the Layout Tab
- Reset Screen Buffer size to 80 Width and 25 Height
- Insure that Window size is 80 Width and 25 Height

APPENDIX H

Creating the SCO UNIXWARE 7.1.1 Emergency Recovery Disks & Tapes

Note: Creating the emergency recovery disks and tapes can take up to 3 hours to complete. And NO users can be logged on while they are being created (some file systems are unmounted during the process). Restoring the system from the disks & tapes can also take up to 3 hours to complete. Both procedures require interaction at the console by the SA. The SA must answer questions at various times and replace disks & tapes when prompted, so this process can not be setup in the server's crontab to be run 'automatically'. Recommend this process be run on a weekly basis. It should be run *at least* once a month. Remember, the information on the disks & tapes will be your 'starting point'. After you restore from them, the SA will still have to restore the AFMIS databases from the last full system backup. The rest of this document will consist of two parts; the first will walk you through the creation of the emergency recovery disks & tapes. The second will discuss how to restore from those disks & tapes.

Part One: Creating Emergency Recovery Disks & Tapes

1. Make sure all users have logged off the AFMIS UNIX server. Switch from the graphical environment to the system console, by pressing <Ctrl><Alt><Esc>. Log in to the system console as *root* user (you may have to press the enter key to get the "**Console Login:**" prompt to appear). At the root prompt, type "**shutdown –y –g0 –i1**". This will bring the system into single-user mode. Log in to the system console as *root* user.

2. You will use the format command to create two formatted diskettes. Make sure both are not write protected and label each diskette with the name of the system, date created, and their name and number. Insert the first diskette into the diskette drive. Type "**format –v /dev/rdsk/f03ht**" and press enter. The diskette will be formatted (takes about a minute), then remove the diskette and replace with the second diskette and repeat the command "**format –v /dev/rdsk/f03ht**" and press enter.

3. At the root prompt, type "**/sbin/emergency_disk –d /home diskette1**" and press enter. When prompted, insert the first formatted diskette into the drive and press enter. Creating each emergency recovery disk can take up to 15 minutes. When prompted, "**Please enter the medium to use for emergency_rec (default ctape1)?**" press the enter key to accept default. When prompted, remove the first diskette, insert the second diskette and press enter. After the process has completed (you see the root prompt), remove the second diskette from the drive. Make sure that both diskettes are write-protected and store in a secure location. You now have completed the creation of the two emergency recovery diskettes.

4. The creation of the emergency recovery dat tape will require the file "**emergency_rec**". SEC-LEE has modified this script so that it works correctly with the COMPAQ 1600 Proliant hard drives. You will have to contact the Customer Assistance Office (CAO) at DSN 687-1051 to obtain this file. After receipt of the emergency_rec script, you will have to transfer (ftp) the file to the AFMIS UNIX server. File should be placed in the **/sbin** directory. The size of the file should be **26554** bytes. Ensure the file has permissions of "**544**", owned by "**root**" and group is "**sys**". Recommend using dat tapes with a large capacity such as the Sony DDS-3 (DGD125P). Native capacity is 12 GB uncompressed and 24 GB compressed. Tape length is 125meters/410feet.

5. Make sure all users have logged off the AFMIS UNIX server. If you are already in single user mode skip to **step 6** below. Other wise, make sure all users have logged off the AFMIS UNIX server. Switch from the graphical environment to the system console, by pressing <Ctrl><Alt><Esc>. Log in to the system console as *root* user (you may have to press the enter key to get the "**Console Login:**" prompt to appear). At the root prompt, type "**shutdown –y –g0 –i1**". This will bring the system into single-user mode. Log in to the system console as *root* user.

6. You will need 1 dat tape to perform the emergency recovery tape backup. Make sure tape is not write protected and label dat tape with the name of the system and the date created. At the root prompt, type "**/sbin/emergency_rec –e ctape1**" and press enter. You will then be prompted to insert the dat tape. Insert the dat tape into the dat drive and **wait** until the light(s) have stopped flashing on the dat tape drive. Press enter to process the dat tape. The creation of the emergency dat tape can take up to 3 hours to complete. You'll notice a percent complete message displayed on your screen as the system is backed up. After the process has completed (100 percent), remove the dat tape, write protect it, and then store it in a secure location. At the root prompt, type "**shutdown –y –g0 –i6**" to reboot the system. You have now completed the creation of the emergency recovery dat tape.

Part Two: Restoring Emergency Recovery Disks & Tapes

1. If your system will not boot, your system software is corrupted beyond repair, or your hard disk has been reformatted or replaced, you can use your emergency recovery media and incremental backups to restore your system. Before attempting to restore the system, ensure that your motherboard, hard disks, memory, and peripherals are in good working order. While this recovery procedure restores all the system software, applications, and data on the recovery media to your hard disk, it does not ensure proper operation of the system hardware.

2. To recover the system: Insert the first emergency recovery diskette in the floppy diskette drive, and then reboot your system. If you mistakenly inserted the second

diskette, replace with the first diskette and reboot. The system will load software from the first diskette. When prompted, remove the first diskette, insert the second diskette and press enter. Your hard drive will be analyzed and if it ok, you should see a message stating, "**Your hard drive is sane**". Press enter to continue. After several minutes, you will be presented with the Emergency Recovery main menu.

3. Use the up or down arrow keys or the <Tab> key to select "**Restore Disk(s)**" and then press enter. You will be prompted to insert the first dat tape. Insert the emergency dat tape that you created from Part One (Creating Emergency Recovery Disks & Tapes) into the dat drive and **wait** until the light(s) have stopped flashing on the dat tape drive. Press enter to process the dat tape. This process can take up to 3 hours to complete.

4. After the restore process has completed you will see a message stating, "**Disk(s) is (are) successfully restored**". Press enter to continue. You will return to the Emergency Recovery main menu. Select option "**Reboot**" and press enter. You will see a message stating, "******Make sure the boot drive diskette or CD-ROM is empty******". Remove the second emergency recovery diskette from the floppy drive & the dat tape from the dat tape drive. Press enter to continue. System will reboot.

5. You may notice error messages similar to the following: " UX: initprivs: WARNING: File ``**file**'' fails validation: entry ignored or UX: initprivs: WARNING: X entries ignored in ``/etc/security/tcb/privs''. This is because the date stamp for the inode was changed during the restore process. If you don't see any of these messages while rebooting your system, skip to step 6. Otherwise, you can fix these errors after your system boots up, by logging in as *root* and entering the following command at a root prompt, "**/etc/security/tools/setpriv –x**" and press enter.

6. You will have to restore your AFMIS databases. Restoring the database files that were backed-up by ajk71u.x01. If the End-of-Day/End-of-Month function encounters a fatal error during execution, the CAO should be contacted. If necessary, the system administrator may have to restore the database(s) from their last good full system backup.

    a. Log on the system as "afmis".

        (1) afmis> ajk72u.x01 Press <Enter>
        (2) If an error occurs while attempting to place the contents of the tape on the hard disk, DO NOT CONTINUE. Contact CAO at DSN 687.1051. Otherwise skip to step (3) below.
        (3) Select option "B" (Restore AHC, TISA, DFO, and EOD) from menu displayed. Press <Enter>
        (4) You will see a message that says, "RESTORE AHC, TISA, AND DFO END OF DAY TO /informix/backup/tisa /informix/backup/ahc /Informix/backup/dfo".

(5) Then you will see a message that says, “PLEASE MOUNT END OF DAY TAPE AND HIT RETURN TO RESTORE FILES”. Press the <Enter> key to continue.

(6) You will see a message that say, “PLEASE WAIT…” After the databases are restored (may take several minutes), you will return to the afmis prompt (afmis>). Next you will verify database files have been restored to “/informix/backup”.

(7) afmis> cd /informix/backup Press <Enter>
(8) afmis> ls –l tisa Press <Enter>
(9) afmis> ls –l ahc Press <Enter>
(10) afmis> ls –l dfo Press <Enter>
(11) afmis> cd $DBDIR/afmisdb.dbs Press <Enter>
(12) afmis> lc Press <Enter>
(13) afmis> rm -rf * Press <Enter>
(14) afmis> lc Press <Enter>
(15) afmis> cd $DFODBDIR/afmisdb.dbs Press <Enter>
(16) afmis> lc Press <Enter>
(17) afmis> rm -rf * Press <Enter>
(18) afmis> lc Press <Enter>
(19) afmis> cd $DFO/afmisdb.dbs Press <Enter>
(20) afmis> rm -rf * Press <Enter>
(21) afmis> lc Press <Enter>
(22) afmis> cd $EODBKUP/dfo Press <Enter>
(23) afmis> find . – print | cpio –pvd $DFODBDIR/afmisdb.dbs Press <Enter>. If an error occurs while copying the database, DO NOT CONTINUE. Contact CAO at DSN 687.1051. Otherwise skip to step (24) below.
(24) afmis> cd $DBDIR/afmis.dbs Press <Enter>
(25) afmis> cd $EODBKUP/tisa Press <Enter>
(26) afmis> find . – print | cpio –pvd $DBDIR/afmis.dbs Press <Enter>
(27) afmis> cd $EODBKUP/ahc Press <Enter>
(28) afmis> find . – print | cpio –pvd $AHCDBDIR/ahc.dbs Press <Enter>
(29) afmis> cd $DBDIR/afmis.dbs Press <Enter>
(30) afmis> ls -l * Press <Enter>
(31) afmis> chgrp informix * Press <Enter>
(32) afmis> chmod 666 * Press <Enter>
(33) afmis> ls -l Press <Enter>
(34) afmis> cd $DFODBDIR/afmisdb.dbs Press <Enter>

(35) afmis> ls -l * Press <Enter>
(36) afmis> chgrp informix * Press <Enter>
(37) afmis> chmod 666 * Press <Enter>
(38) afmis> ls -l Press <Enter>
(39) afmis> cd $AHCDBDIR/ahc.dbs Press <Enter>
(40) afmis> ls -l * Press <Enter>

(41) afmis> chgrp informix * Press <Enter>
(42) afmis> chmod 666 * Press <Enter>
(43) afmis> ls -l * Press <Enter>

You now have completed the restoration of your system using the Emergency Recovery diskettes and tapes.

b. To get your report log back in sequence you need to create the following SQL using "vi", if it does not currently exist:

{maxrpt.sql}
SELECT MAX(rpt_num) from rcl

Type isql afmis maxrpt Press <Enter>

Record report number retrieved by the SQL on a piece of paper.

For example: (max)
189946
1 row(s) retrieved

afmis> cd $AFMIS/reports Press <Enter>

afmis> Remove all reports with number greater than the maximum report number recorded. (Report naming convention is R######## or R###############.Z where "############" is a number.)

afmis> ls -lt | pg Press <Enter>

afmis> The report number displayed at the top of the list should match the maximum report number recorded. If not, repeat steps 19 through 21.

afmis> cd $HOME/bin dbadmin/sql < chk.out Press <Enter>

afmis> cd isql afmis CHKTABLE > > chk.out Press <Enter>

APPENDIX I

Setting up the Lexmark Optra M410 Laser Printer to print AFMIS Reports

1. These instructions are written for the AFMIS system administrator, who has basic knowledge of SCO Unixware 7.1 & Windows NT 4.0 Workstation operating systems. AFMIS users will be connecting to server as they normally do (via modem, LAN, etc) and logging into the AFMIS UNIX Server (currently the Compaq Proliant 1600) using a terminal emulator from their Windows NT 4.0 workstation.

2. **How to setup the Lexmark Optra M410 Laser Printer directly connected to the parallel port on the AFMIS UNIX Server:**

   (a) Ensure printer is connected to parallel port on the Compaq Proliant 1600 server, powered on, & paper has been added. Ensure the 'ready' message is displayed on the LED control panel above the menu, select, and return buttons on the Lexmark printer. Each button has a number associated with it, for example, button '1' is the **left arrow** under the menu option, button '2' is the **right arrow** under the menu option, button '3' is the **select** option, button '4' is the **return** option, button '5' is the **go** option, & button '6' is the **stop** option. For the remainder of this document you will be instructed to press button(s) 1 to 6 when necessary.

   - Press button '2' six times to get to the **Setup Menu**.
   - Press button '3' twice to get to **printer language=PS Emulation**.
   - Press button '2' once to change to **printer language=PCL Emulation**.
   - Press button '3' once to accept change.
   - Continuing from the setup menu (printer language), press button '4' once to return to the **Setup Menu**.
   - Press button '2' once to get to the **PCL Emul Menu**.
   - Press button '3' once to get to **Font Source**.
   - Press button '2' twice. Press button '3' once to get to **Pitch**.
   - Press button '3 to see pitch as **10.00**.
   - Press button '2' until you change the pitch to **12.00**, then
   - Press button '3' once to accept change.
   - Press button '2' three times to get to **Lines per Page**.
   - Press button '3' once to see lines per page as **60**.
   - Press button '2' until you change the lines per page to **66**, then
   - Press button '3' once to accept change.
   - Press button '4' twice to return printer to '**Ready**' state.

   You have now successfully changed the Lexmark printer to PCL Emulation, 12 characters per inch, and 66 lines per page. The next task is to add a local printer to the Compaq Proliant 1600 Server using the Sco Admin tool.

(c) Login as root on the AFMIS Compaq Proliant 1600 server using the graphical terminal (not the dumb tube). Either through command line or clicking on tool bar (the up arrow above the tree icon) and selecting **SCO Admin**. Double click on **Printer Setup Manager** to open up the Printer Setup window. Click on **Printer** from the menu on the top of the window and then click on **Add Local Printer** to open the Add a Serial or Parallel Printer Window. In the name field enter **Lexserver**. Tab to the Make/Model field and scroll down the list till you find **HPLaserJetIIIsi (PCL)**. Ensure that printer driver is highlighted, then make sure connection type is **Parallel** and connection port is **LPT1**. Then click on **OK** to add the printer. Click on **Host** from the menu bar and then click **Exit** to leave the Printer Setup window. Click on **Host** from the menu bar and then click on **Exit** to leave the SCO Admin tool. Logout from system. You have now successfully added a printer called Lexserver to the AFMIS Compaq Proliant 1600 server.

(d) Lastly, For each user that will print to this directly connected printer, ensure that the following lines are included in their **.profile** in their home directory on the Compaq Proliant 1600 Server:

LPDEST=printername
DBPRINT="lp –s –dprintername"

3. **<u>How to setup the Lexmark Optra M410 as a network printer:</u>**

(a) You will be responsible for obtaining a VALID IP address, subnet mask, & IP gateway address for EACH Lexmark printer that will be setup as a network printer on your local area network from your local DOIM. You may have to work with your local DOIM to resolve any 'firewall' issues. Install or have the LAN card installed into the Lexmark printer.

(b) Connect a 10 Base T ethernet cable (RJ-45 connection) to the internet card located in the rear of the Lexmark Optra M410 printer. Ensure printer is powered on and paper has been added. Ensure the 'ready' message is displayed on the LED control panel above the menu, select, and return buttons on the Lexmark printer. Each button has a number associated with it, for example, button '1' is the **left arrow** under the menu option, button '2' is the **right arrow** under the menu option, button '3' is the **select** option, button '4' is the **return** option, button '5' is the **go** option, & button '6' is the **stop** option. For the remainder of this document you will be instructed to press button(s) 1 to 6 when necessary.

- Press button '2' six times to get to the **Setup Menu**.
- Press button '3' twice to get to **printer language=PS Emulation**.
- Press button '2' once to change to **printer language=PCL Emulation**.

- Press button ‘3’ once to accept change. Continuing from the setup menu (printer language),
- Press button ‘4’ once to return to the **Setup Menu**.
- Press button ‘2’ once to get to the **PCL Emul Menu**.
- Press button ‘3’ once to get to **Font Source**.
- Press button ‘2’ twice. Press button ‘3’ once to get to **Pitch**.
- Press button ‘3 to see pitch as **10.00**.
- Press button ‘2’ until you change the pitch to **12.00**, then
- Press button ‘3’ once to accept change.
- Press button ‘2’ three times to get to **Lines per Page**.
- Press button ‘3’ once to see lines per page as **60**.
- Press button ‘2’ until you change the lines per page to **66**, then
- Press button ‘3’ once to accept change.
- Press button ‘4’ twice to return printer to ‘**Ready**’ state.

You have now successfully changed the Lexmark printer to PCL Emulation, 12 characters per inch, and 66 lines per page. The next task is to set the network parameters in the Lexmark Optra M410 laser printer using the same control panel.

- Push button ‘2’ ten times to get to the **Network Menu**.
- Press button ‘3’ once to get to **Network Option 1**.
- Press button ‘3’ once to get to **PCL Smartswitch**.
- Press button ‘2’ four times to get to **Network 1 Setup**.
- Press button ‘3 to get to **Print**.
- Press button ‘2’ four times to get to **TCP/IP**.
- Press button ‘3’ once to get to **Activate**.
- Press button ‘2’ four times to get to **Set IP Address**.
- Press button ‘3’ to enter the IP address.
- Use buttons ‘1’ & ‘2’ to increase or decrease the numbers until it matches the valid IP address provided to you (in this example we used 155.154.112.203).
- Press button ‘3’ once to accept each 3 digit octet. (pressing button ‘3’ a total of four times to accept the IP address).
- Press button ‘2 once to get to **Set IP Netmask**.
- Press button ‘3’ to enter the Netmask. Doing as you did before, use buttons ‘1’ & ‘2’ to increase or decrease the numbers until it matches the valid netmask provided to you (we used 255.255.255.0).
- Press button ‘3’ once to accept each 3 digit octet (pressing a total of four times to accept the Netmask).
- Press button ‘2’ once to get to **Set IP Gateway**.
- Press button ‘3’ to enter the IP Gateway address.
- Use buttons ‘1’ & ‘2’ to increase or decrease the numbers until it matches the valid IP Gateway address provided to you (in this example we used 155.154.112.254).

- Press button '3' once to accept each 3 digit octet (pressing a total of four times to accept the IP Gateway address.
- Press button '4' five times to get to '**Ready**' state.

The next task is to add the printer to the Compaq Proliant 1600 Server using the Lexprt Utility below.

4. INSTALLING LEXMARK PRINT DRIVERS

1) At a root prompt type:
pkgadd –d /prtdrivers/drivers-unixware7.pkg

2) Installation will begin, you will first be asked to select the packages to process: (hit **enter** to select default ALL)

3) Enter path to installation directory: (hit **enter** to select default /opt/lexmark)

4) How should the fonts be installed: **B**

5) Enter directory in which the fonts will be added: (hit **enter** to select default)

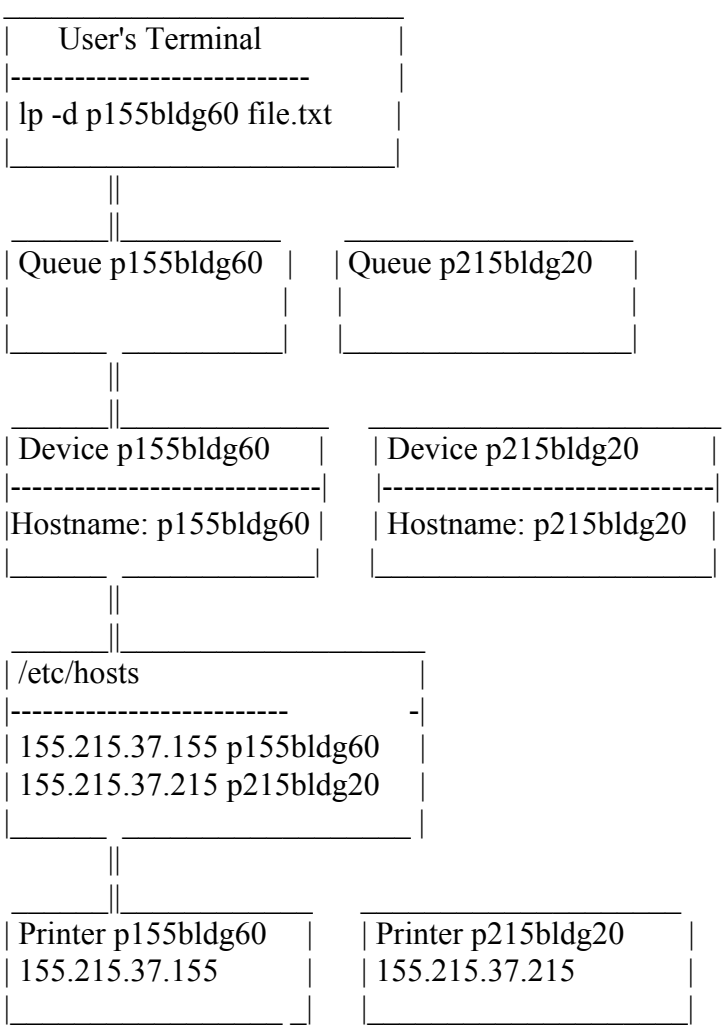
6) Install path: (hit **enter** to select default /opt/lexmark)

7) Administrative group: (hit **enter** to select default)

8) End of installation. **Note:** this is a one time process.

DIAGRAM OF HOW PRINT DRIVER WORKS

Notice that queue name, the hostname, the device name and the printer name are all the same.



SETTING UP LEXMARK PRINTERS

1) At a root prompt in the GUI type: type **lexprt** press enter.

2) Note: There is a bug in lexprt where the ACCEPT button will not work until you click on one of the menu items. Do not actually select anything in the menu, simply click a menu then click anywhere else. Then the ACCEPT button will work.

3) Click on: **Create a virtual device**

4) **Enter the device name**. For example if the printer's name is p155bldg60, the device name should be p155bldg60. Click **ACCEPT**.

5) Click on: **Network Connection**

6) **Enter the host name for the printer**. This host name **MUST** be in /etc/hosts or on a DNS server. The host name should be the same as the physical printer's name. Click ACCEPT.

7) In "Network Device Options" click **ACCEPT** to accept the defaults.

8) Click on: **Create a queue**

9) **Enter a queue name**. This is the name that will be used when setting a print destination for commands like "lp -d QueueName". For clarity, use the same name as the hostname. Click **ACCEPT**.

10) Click on the **device you just created**.

11) Choose a type of printer. During creation of this document the "Lexmark Optra M41x (410, 412)" printer was used but your specific printer may be different.

12) In "Printer Language" select: **AUTO**

13) Click on the **|...|** box next to "PCL emulation options".

    a) change the **Pitch to 12**
    b) change **Lines per page to 66**
    c) make sure the option **"66 lines per page" is ON**
    d) change the **Page Width to 120**
    e) change **"Collation" to ON**
    f) click on the **|...|** box next to "Banner page options"
        1) change **"Print banner" to NO**

2) change **"Run banner program" to NO**
3) change **"Pitch" to 12**
4) change **"Lines per page" to 66**
5) make sure **"66 lines per page" is ON**

14) Click **ACCEPT**, **ACCEPT**

15) Click on the **|...|** box next to "PostScript emulation options".

a) change **"Collation" to ON**
b) click on the **|...|** box next to "Banner page options"
1) change **"Print banner" to NO**
2) change **"Run banner program" to NO**

16) Click **ACCEPT**, **ACCEPT**, **ACCEPT**

17) You should now be back at the Main Menu. Return to step 3 if there are more printers to be configured.

18) **Install the terminfo file** (One time process). This involves copying the terminfo file to the /usr/share/lib/terminfo/o directory.

cd /usr/share/lib/terminfo/o
cp /prtdrivers/optraM410 .
chown bin optraM410
chgrp bin optraM410
chmod 644 optraM410

(/prtdrivers/optraM410 is the full path to the terminfo file)

19) **Install the custom interface file**. This involves copying the custom file on top of the file with the name of the queue name in /etc/lp/interfaces. Do this for each Lexmark printer installed on the system. Be careful not to do this to any non-Lexmark printers.

cp /prtdrivers/Lexprinter /etc/lp/interfaces/PRINTERNAME

(/prtdrivers/Lexprinter points to custom interface file) **PRINTERNAME** is the queue name of the Lexmark printer)

20) **Change each printer's configuration file to use optraM410**. **Change directory to /etc/lp/printers/PRINTERNAME and edit the file name "configuration". In the file change the line that reads "Printer type: unknown" to "Printer type: optraM410" without quotes**. Do this for **each** Lexmark printer installed on the system and be careful not to change any non-Lexmark printers.

cd /etc/lp/printers/PRINTERNAME
vi configuration

(**PRINTERNAME** is the queue name of the Lexmark printer)

21) **Restart the print server**. At a root prompt in the GUI type: **scoadmin Printer Setup Manager**

22) In the window that appears:

a) In the menubar click "**Server**" then click "**Halt**".
b) Click "**OK**" on the question box that appears.
c) In the menubar click "**Server**" then click "**Start**".
d) Click "OK" on the question box that appears.
e) In the menubar click "**Host**" then click "**Exit**".

4. Now we need to make a few more changes to the Lexmark Optra M410 printer using telnet. At the command line type **telnet xxx.xxx.xxx.xxx 9000** (**Note:** xxx.xxx.xxx.xxx is your DOIM furnished Lexmark printer ip address) and then press '**enter**'.
You will see nine options listed under the 'Main Menu'.

- Type **5** at the selection prompt and press **enter**.
- You will be at the LPD configuration menu.
- Type **1** and press **enter**.
- Type **X** and press **enter** to exit current menu and return to the main menu.
- Type **1** at the selection prompt and press **enter**.
- You will be at the IP address configuration menu.
- Type **9** at the selection prompt and press **enter**.
- Enter the **printer's name** at the "**Enter new value for Hostname**" prompt
- and then press **enter**.
- Type **X** and press **enter** to exit current menu and return to the main menu.
- Type **8** and press **enter** to save changes.
- Type **X** and press **enter** to exit this telnet session.

You have now successfully setup the Lexmark Optra M410 as a network printer on the AFMIS Compaq Proliant 1600 server.

5. Lastly, for each user that will print to this network printer, ensure that the following lines are included in their .profile in their home directory on the Compaq Proliant 1600 Server:

LPDEST=printername
DBPRINT=”lp –s –dprintername”

APPENDIX J

Setting up the ExtendedNet Print Server

Name of Printer Server: ExtendedNet ESI 2941 Single Port (10/100mb) Print Server

Company Name: Extended Systems 1-800-235-7576

The ExtendedNet ESI-2941 print server works well with MT 645, MT 661, Okidata 321, & Lexmark 4227 Plus printers. This device allows (if user has lan drop and valid static IP address) a way to make their dot matrix printers tcp/ip printers (also works with laser printers without a LAN card). No more huffing to another building miles away to pickup an IFA master menu printout (if server isn't collocated at the IFA, etc) No more messing with settings.

(1) For this example, I will walk you through installing the device to a Okidata 321 printer. The installation of this print server was very easy. After verifying that you have a live lan drop and a valid ip address for the printer server, connect a 10 BaseT lan cable to the rear of the ExtendedNet ESI-2941 print server. Power it up. The device will do some self checks and verify that the lan line was active. If the lan line is not active, a 'red' lcd light will be displayed on the print server. Connect a 25 pin parallel print cable to the rear of the print server and the other end to the centronics connection on the Okidata 321 printer. Power the printer up and made sure it is online.

(2) Log onto Windows NT workstation (can be any workstation) and insert the Extended Systems's "Network Print Server" cd-rom and install the Windows NT tcp/ip (16 bit) software from the install menu (it auto boots up). Takes about 30 seconds all together. Start the ExtendedNet program on your desktop from start, programs, extended systems printing, and the program will search the network for all ExtendedNet print servers by mac address. After your print server has been located, you will then click on 'configuration' where you enter the ip address, subnet mask ip, and gateway ip address that was provided to you from your local DOIM office. Save the changes. Log onto the AFMIS server and edit the /etc/hosts file and added a line with the Okidata 321's ip address and name (e.g. 155.154.112.226 & okidata321 respectively). Save the hosts file. Then utilize SCO Admin's "printer setup manager" and add a new tcp/ip printer. In this example the printer name will be called 'okidata321', and then select the driver called "ibm proprinter", and ensure it is a network printer and then add in the ip address "155.154.112.226". Click "ok" and the printer will be added. **Note:** If you want to add a Mannesmann Tally 645 or 661 printer make sure you use "fx-850" as the driver for that printer's device. After you have successfully added the printer, test it by printing a test document to the Okidata321 printer.

Additional instructions for setting up a high speed printer (to be used with a ExtendedNet print server). Printers include MT645, MT661 and the Lexmark 4227 Plus

Note 1: The instructions are written from the perspective of a remote pc. If the console is readily available use the mouse instead of the arrow keys and tab keys as stated below.

1) enter scoadmin

2) cursor down (down arrow) to Printer Setup Manager and select it <enter>

3) cursor down (down arrow) to desired printer and <tab> to return to top menu options

4) cursor over (right arrow) to Printer and select it <enter>

5) cursor down (down arrow) to Properties and select it <enter>

6) <tab> to Printer Connection Type

7) cursor over (right arrow) On Remote Server

8) <tab> to Remote Printer and replace text currently in field with **queueff1**

9) <tab> to OK and <enter>

10) <tab> to top menu options

11) cursor over (right arrow) to Server

12) cursor down (down arrow> to Halt and <enter>

13) cursor to Start and <enter>

Note 2: You have modified the internal Remote Server interface between SCO and the ExtendedNet print server. The Printer name that is used by programs and users has not been changed. The queueff1 instructs the print server to form feed prior to printing.

Note 3: You shut down and restarted the Print Services (steps 11-13) not the SCO server.

Exit scoadmin and you should be ready to use the high speed printer. Test the setup by issuing the following lp commands.

lp -d xxx /etc/group
lp -d xxx /etc/group

(where xxx is the name of the printer EX. hsp1)

If all is well, you will have 2 very short printouts, each beginning at the top of the page. If this is not what happened, recheck your steps and ensure there was no typographical mistakes. If still unable to get the intended results, call CAO for further assistance (DSN 687-1051 , 804-734-1051 commercial).

APPENDIX K

How to Reset a Password on a LexMark Optra Printer

Note: Make sure you write down the printer's ip address, subnet mask, gateway, printer name before running this process. After the NVRAM is reset, all tcp/ip information resets back to original settings. After you reset the NVRAM, you will have to enter in the tcp/ip information once again. Refer to **Appendix I, "Setting up the Lexmark Optra M410 Laser Printer to print AFMIS Reports"**

(1) On the printer control panel, scroll to the **Network Menu**, hit select.
(2) Choose **Network Option 1**, hit select
(3) Scroll to **Network 1 Setup**, hit select
(4) At Print, **hold go and left menu at the same time**. You are now at the **SE Menu**
(5) Scroll to **NVRAM**, hit select
(6) Scroll to **ReInit NVRAM**, hit select

Call CAO for further assistance (DSN 687-1051, 804-734-1051 commercial).

APPENDIX L

How to reload the Equinox Software Package

Click on the picture of the console on the bar at the bottom of the screen.

In the window that opened (dtterm) type:

mount –F cdfs –o fperm=0555,nmconv=c –r /dev/cdrom/c1b0t0l0 /mnt

Type:

pkgadd –d /mnt/DRIVERS/UNIX/UNIXWARE eqn

- This seems to be an ISA system. Is this correct [Y/n]? Y
- Should the driver configure all Equinox ISA boards [Y/n]? Y
- Enable high baud rate selection [y/N]? Y
- Should the default set of port monitors/services be installed [Y/n]? Y
- Enter the port service baud rate [9600]: <Enter>

Once the "installation successful" notification is displayed, type umount /mnt <Enter> then remove the Equinox CD from the CD-ROM drive.

Type scoadmin <Enter>.

Double click on the Hardware folder.

Double click on the Serial Manager selection.

Click on the "View" drop-down menu then click on "Boards".

Click on the board labeled "eqn" in the list of port boards in the window.

Click on the "View" drop-down menu and click on "Ports".

Highlight the first port (or whichever port requires configuration). When the "Modify Serial Port term/[port number]" window displays, set the parameters as desired.

Suggestion- Set all ports and set each as follows:

Port type – Terminal

Configure port – incoming and outgoing

- Speed (bps) – auto
- Advanced options Port settings… - Data bits: 8, Parity: None

Click on the “Host” drop-down menu and click on “Exit”.

On the “System Administration” window, click on the “File” drop-down menu and click on “Exit”.

Call CAO for further assistance DSN 687-1051, Comm: 804-734-1051.

APPENDIX K

How to Reset a Password on a LexMark Optra Printer

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(1) On the printer control panel, scroll to the **Network Menu**, hit select.
(2) Choose **Network Option 1**, hit select
(3) Scroll to **Network 1 Setup**, hit select
(4) At Print, **hold go and left menu at the same time**. You are now at the **SE Menu**
(5) Scroll to **NVRAM**, hit select
(6) Scroll to **ReInit NVRAM**, hit select

Call CAO for further assistance (DSN 687-1051, 804-734-1051 commercial).

APPENDIX M

How to add a TCP/IP printing service and adding a printer to the NT Workstation

This appendix will assist in set up a printer to be available use outside the AFMIS environment.

Figure 1

From the main Menu - Right click the Network Neighborhood icon. Figure 2 will appear

Figure 2

Click on Properties - Figure 3 will appear

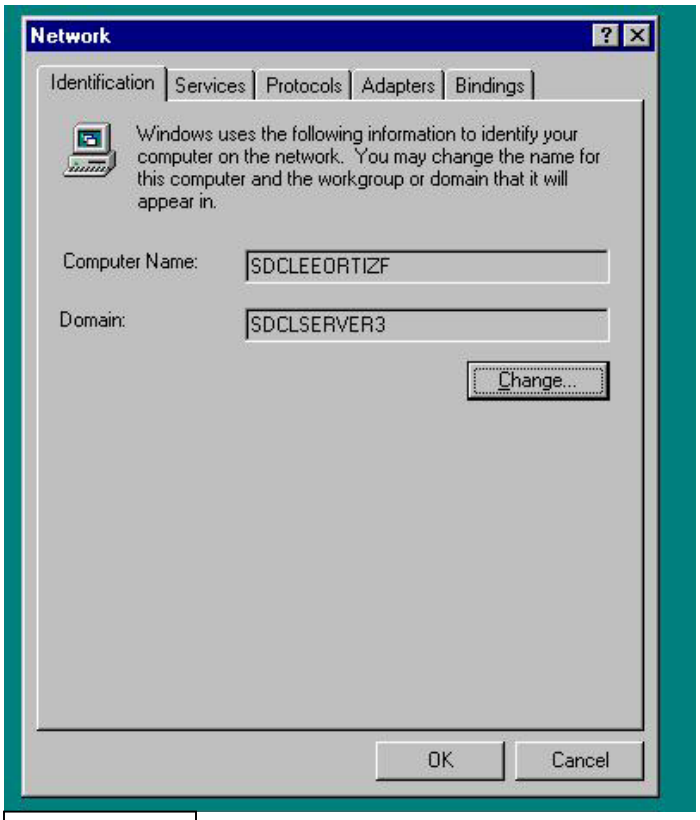

Figure 4

Computer Name and Domain must be changed. To do this, click the "change" button. (information should provided by Installation) Figure 4 will appear.

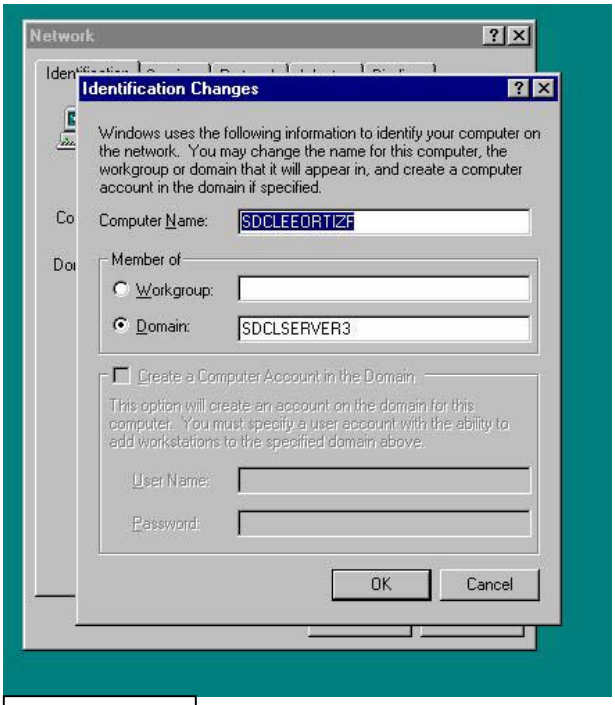

Figure 3

You must enter the computer name and either the name for the workgroup or Domain. Then click OK - You then will see Figure 5

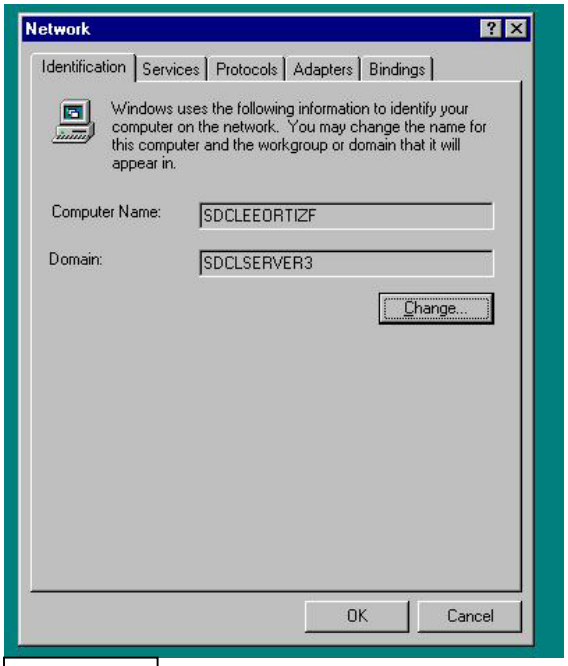

Figure 5

From this screen - click on the Services Tab and Figure 6 will appear

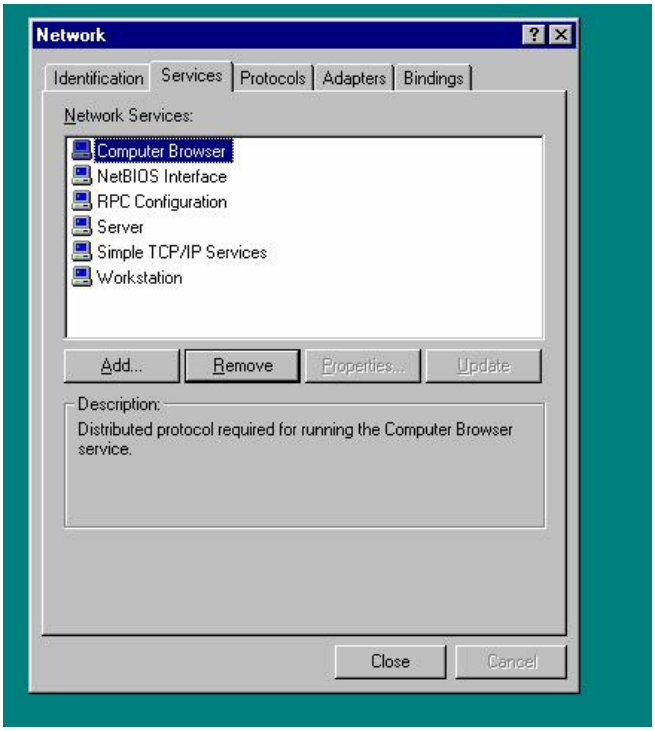

Figure 6

If Microsoft TCP/IP Printing service is not available you must click the "Add" button and Figure 7 will appear. Otherwise click the "Protocol" tab and Figure 10 will appear.

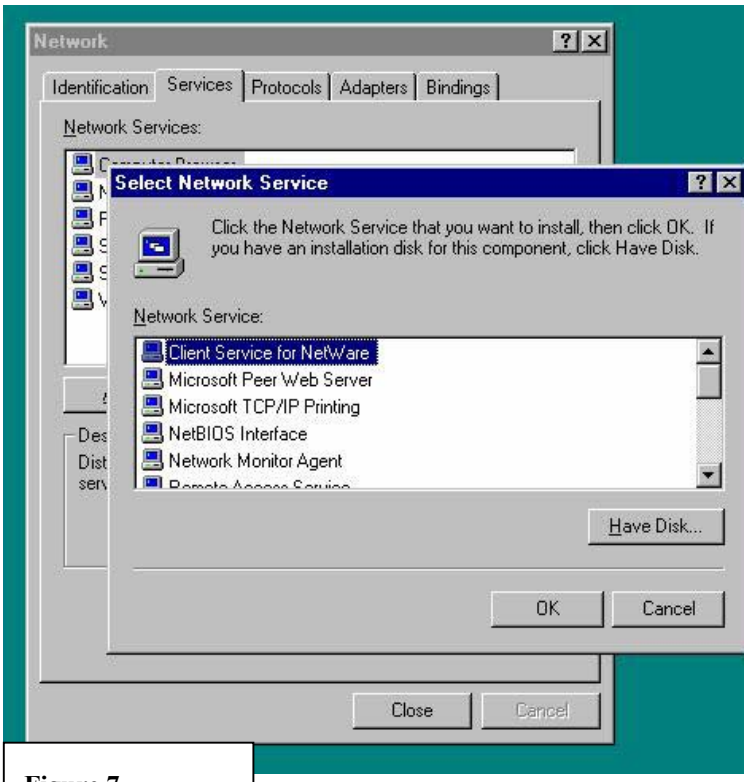

Figure 7

From this window - highlight the "Microsoft TCP/IP Printing " and click the OK Button. Figure 8 will appear.

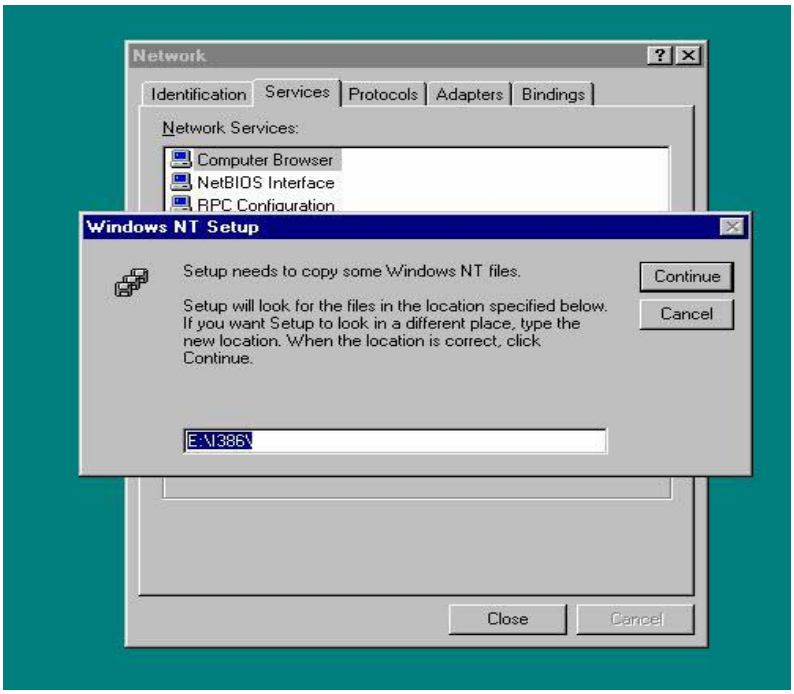

Figure 8

This screen prompt you to enter the location of the files needed. Insert the Windows NT CD ROM - to load service. Click continue to load service. When done you will see Figure 9.

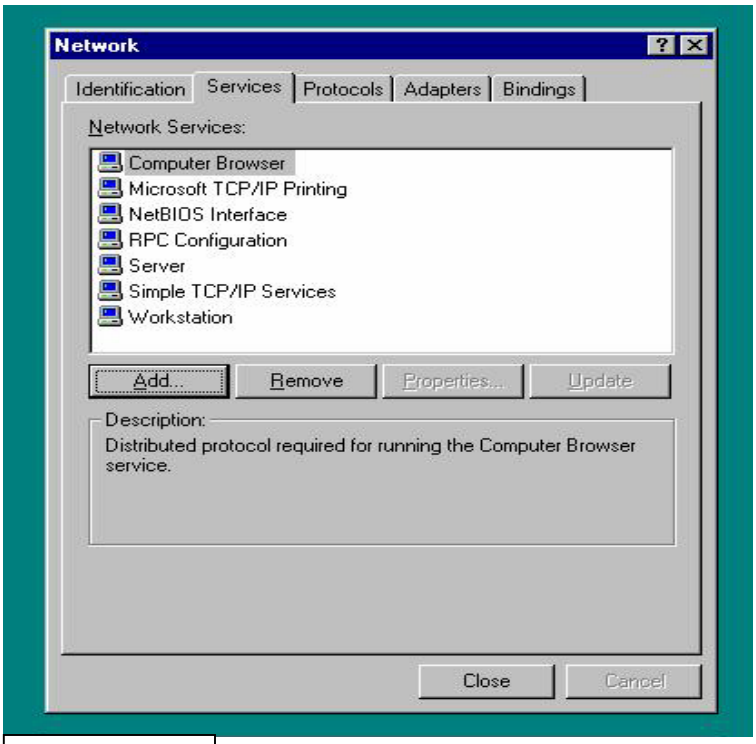

Figure 9

Insure that "TCP/IP Printing Service" appear as a service - then click the "Protocol" tab. Figure 10 - will appear.

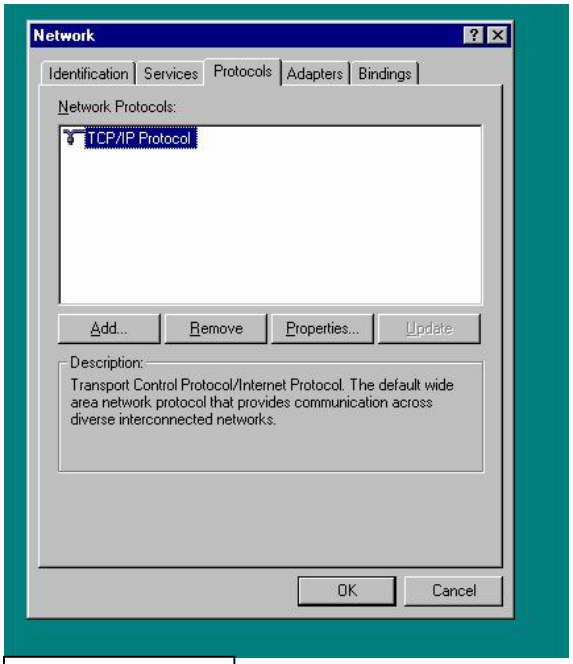

Figure 10

From this screen - highlight the TCP/IP option and click the "Properties" Button. Figure 11 will appear.

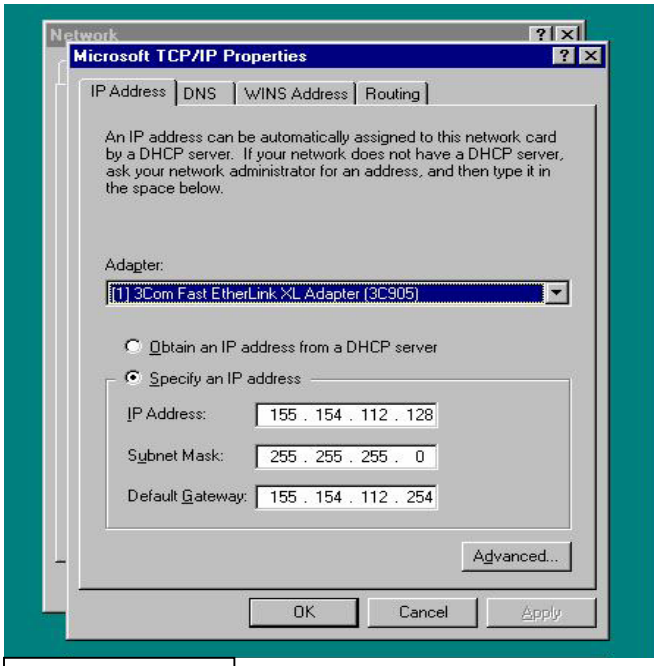

Figure 11

On this screen you will insure that " specify an IP address" is marked. You then proceed to enter the required information.
* IP Address
* Subnet Mask
* Default Gateway

(THIS INFORMATION SHOULD BE PROVIDED BY THE INSTALLATION)

When done - click on the "DNS" tab - Figure 12 will appear

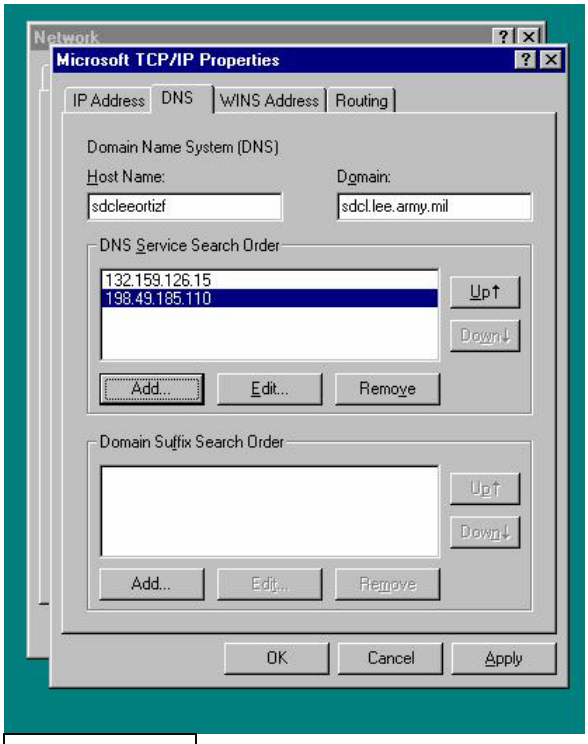

Figure 12

On this screen, once again the information should be provided by the installation.
* Hostname
* Domain
* DNS Service Search Order

To add or edit information - click the "Add" or "Edit" button and Figure 13 will appear.

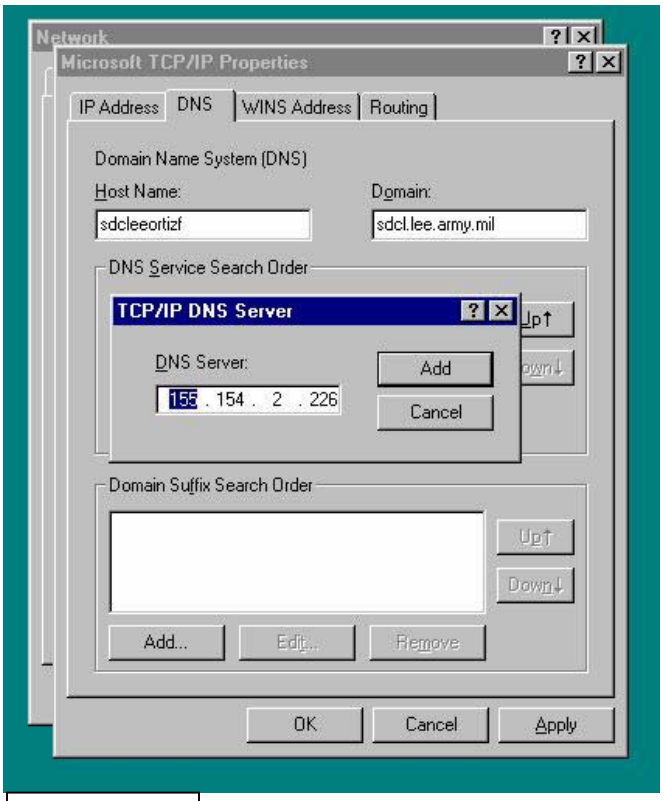

Figure 13

From this screen, add or change information as needed - then click the "Add" or "Edit" button - then click the "WINS" tab and Figure 14 will appear.

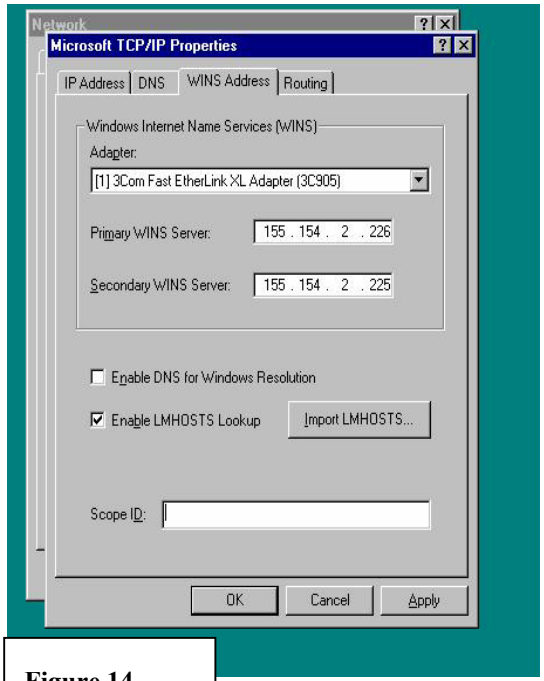

Figure 14

Again on this screen you must enter the information provided by the installation.
* Primary WINS Server
* Secondary WINS Server

When finished - click the "Apply" button then the "OK" button and Figure 15 will appear.

(IT MAY BE ONE OR MORE IP ADDRESS)

Figure 15

You click the "NO" button and the workstation will not reboot. See Figure 16.

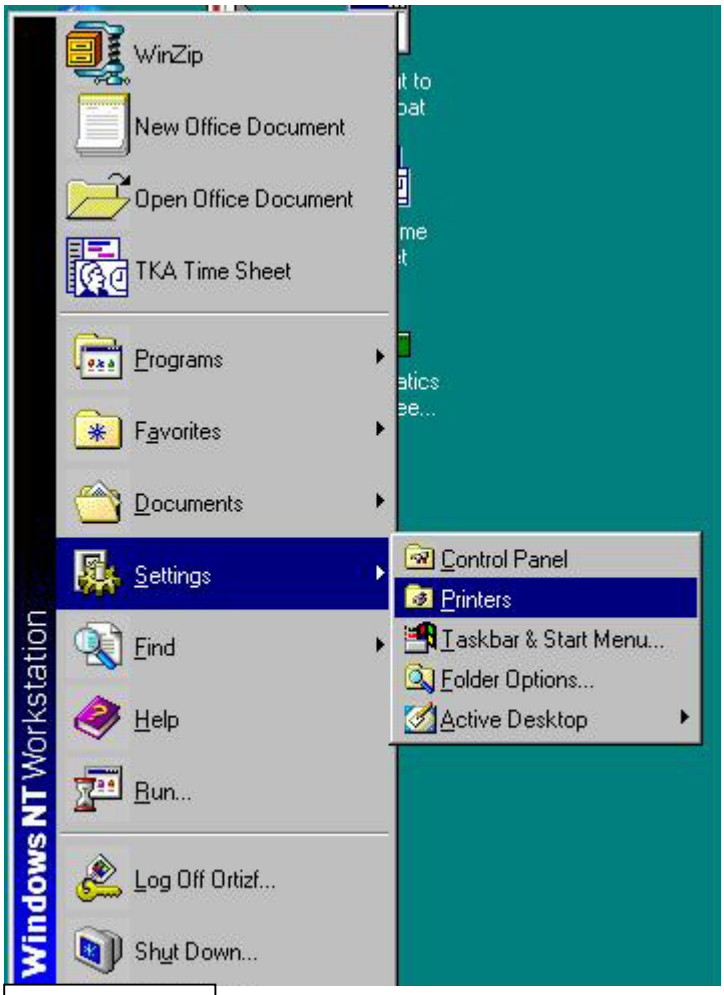

Figure 16

Figure 16 - From the Desktop Screen -
Select Start
Select Settings
Select Printer

You then will see Figure 17.

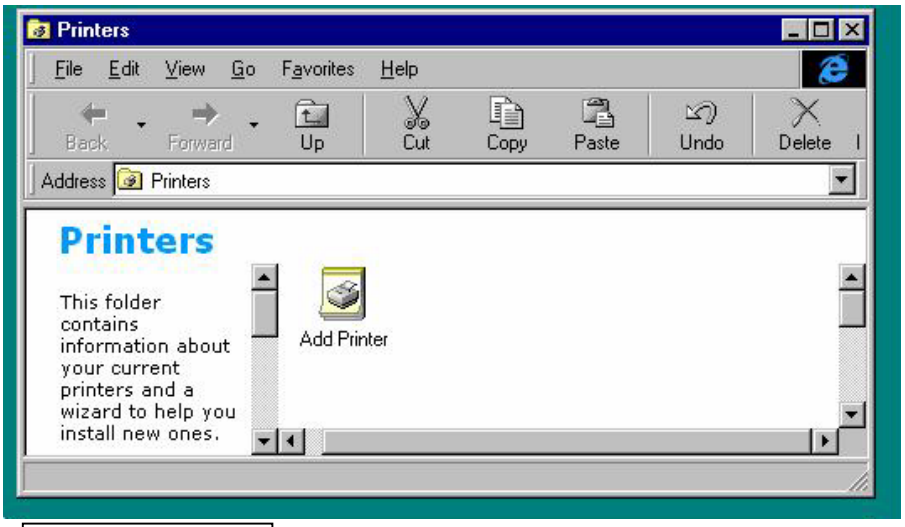

Figure 17

Figure 17 - Double Click the "Add Printer" icon. You will see Figure 18.

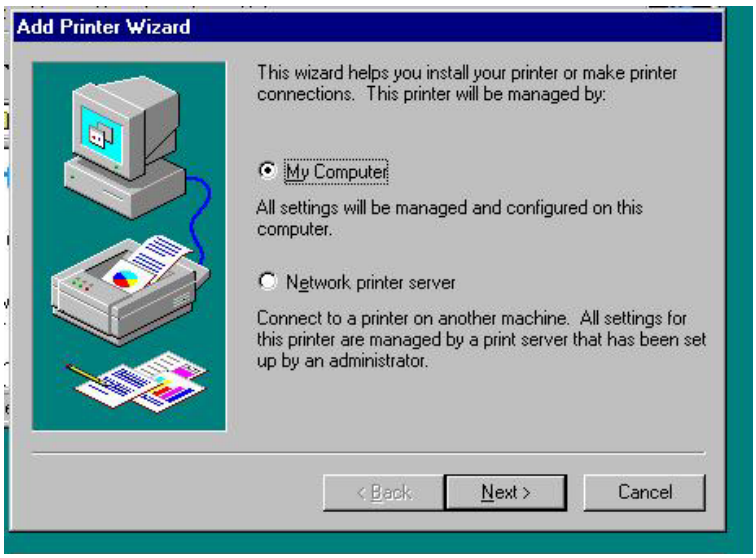

Figure 18

Figure 18 - Select "My Computer" then click the "Next" button. Figure 19 will appear

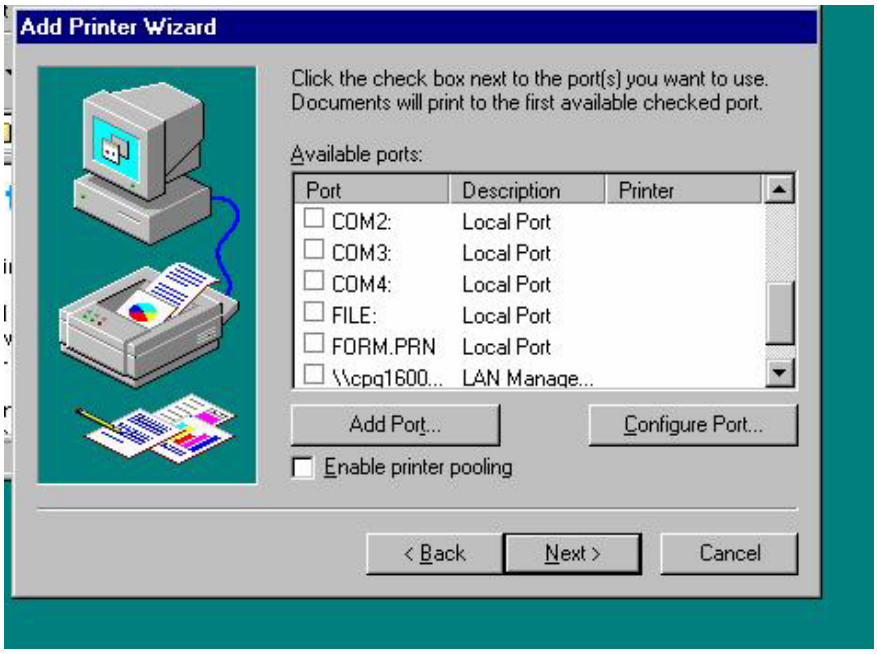

Figure 19

Figure 19 - From this screen, you will click the "Add Port" icon and Figure 20 will appear.

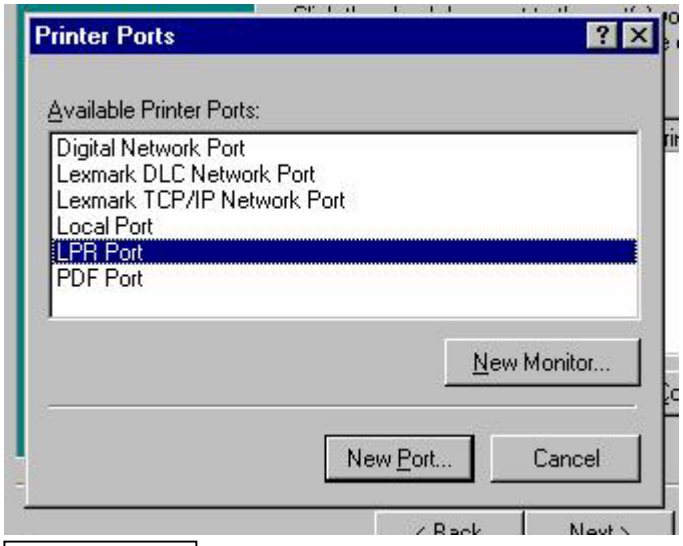

Figure 20

Figure 20 - Highlight "LPR Port" option then click the "New Port" button. Figure 21 will appear.

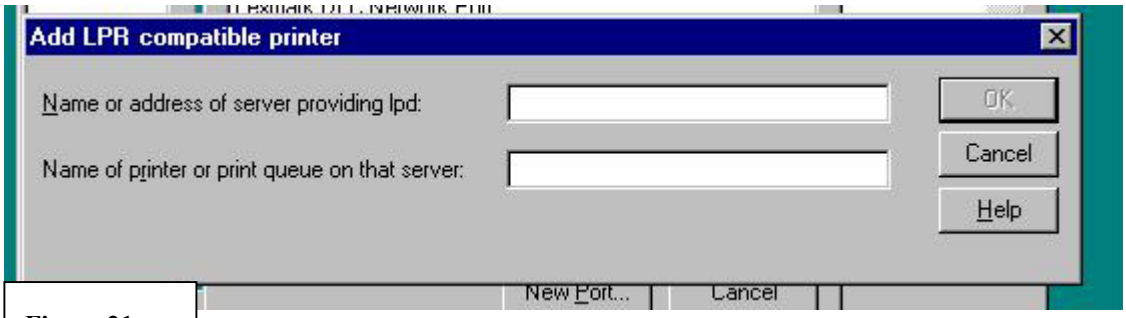

Figure 21

Figure 21 - At this time enter the assigned IP Address to the printer. See Figure 22.

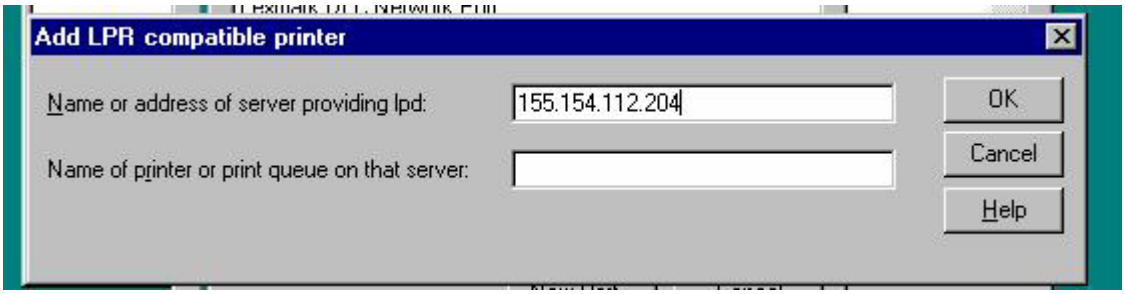

Figure 22

Figure 22 - Click the "OK" button when done. Figure 23 will appear.

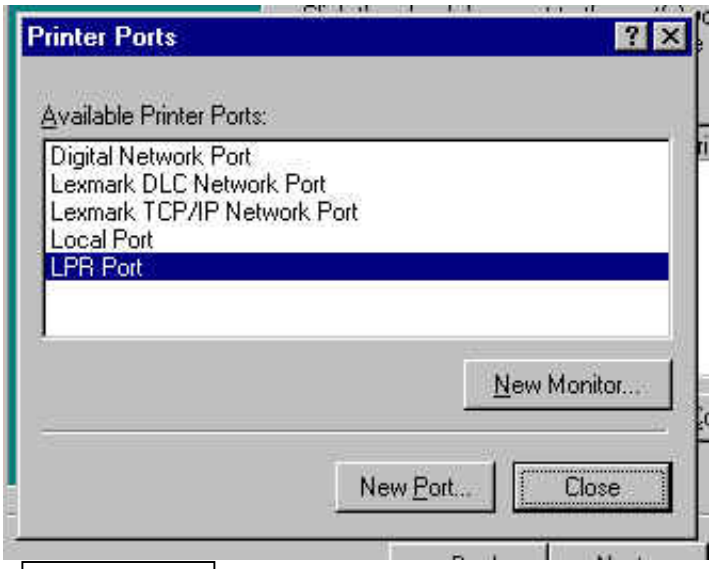

Figure 23

Figure 23 - At this screen click the "Close" button and Figure 24 will appear.

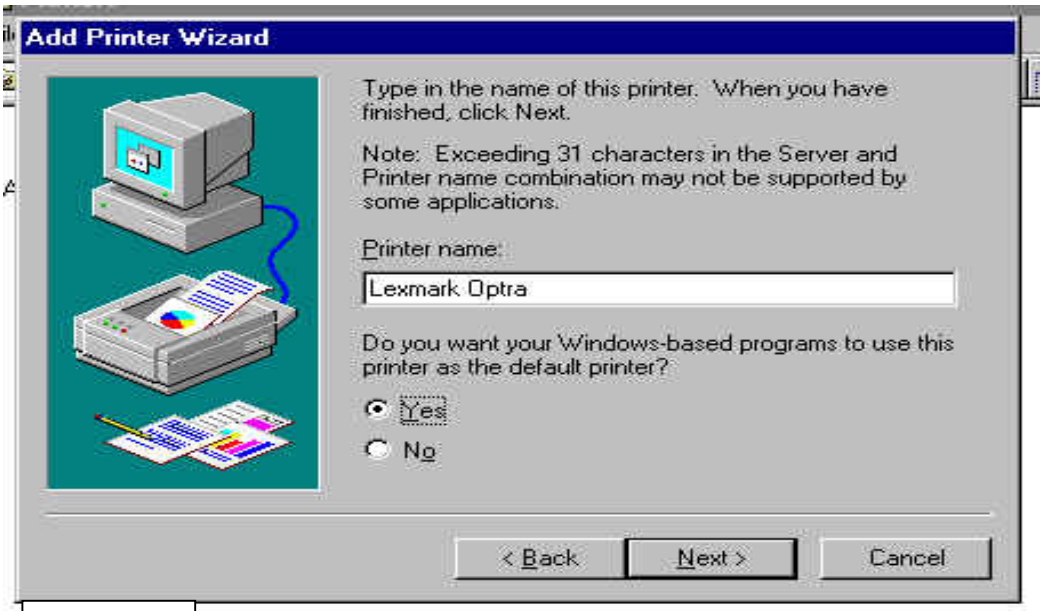

Figure 24

Figure 24 - Here you see the port added. You will know click the "Next" button. Figure 25 will appear.

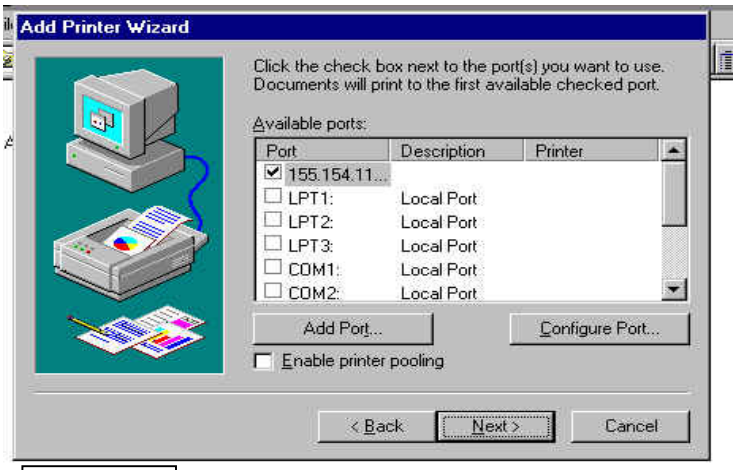

Figure 25

Figure 25 - From this screen under Manufacturers you will highlight "Lexmark" and under printers you will select "Lexmark Optra". - then click the "Next" button.

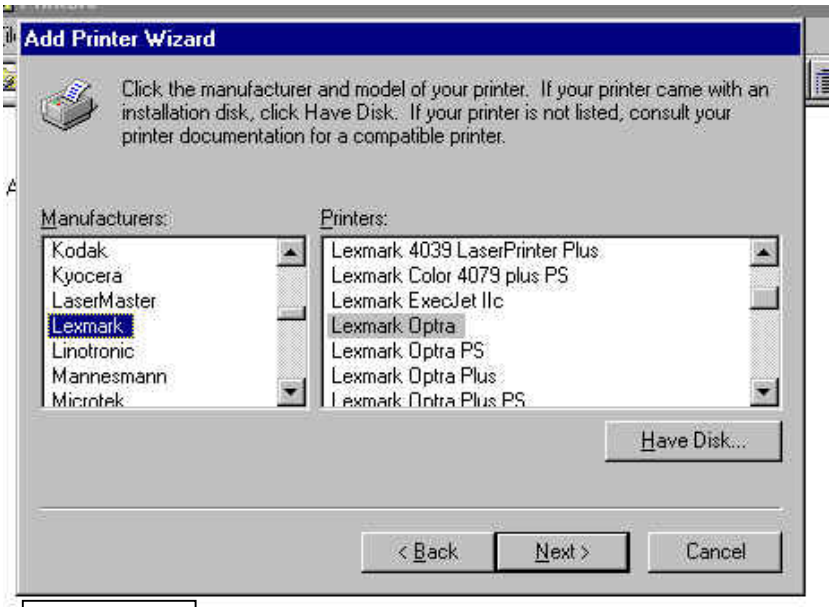

Figure 26

Figure 26 - On this screen - mark the "Yes" block to default printer - then click the "Next" button. Figure 27 will then appear.

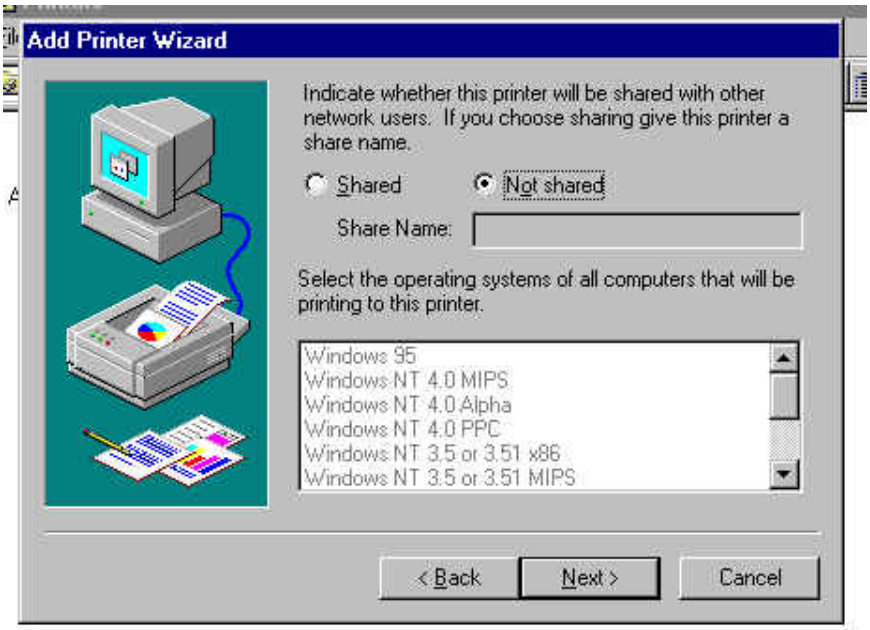

Figure 27

Figure 27 - Insure the "Not Shared" option is selected. Then click the "Next " button. Figure 28 will appear.

Figure 28

Figure 28 - Mark the "Yes" option to Print Test page question. Figure 29 will appear.

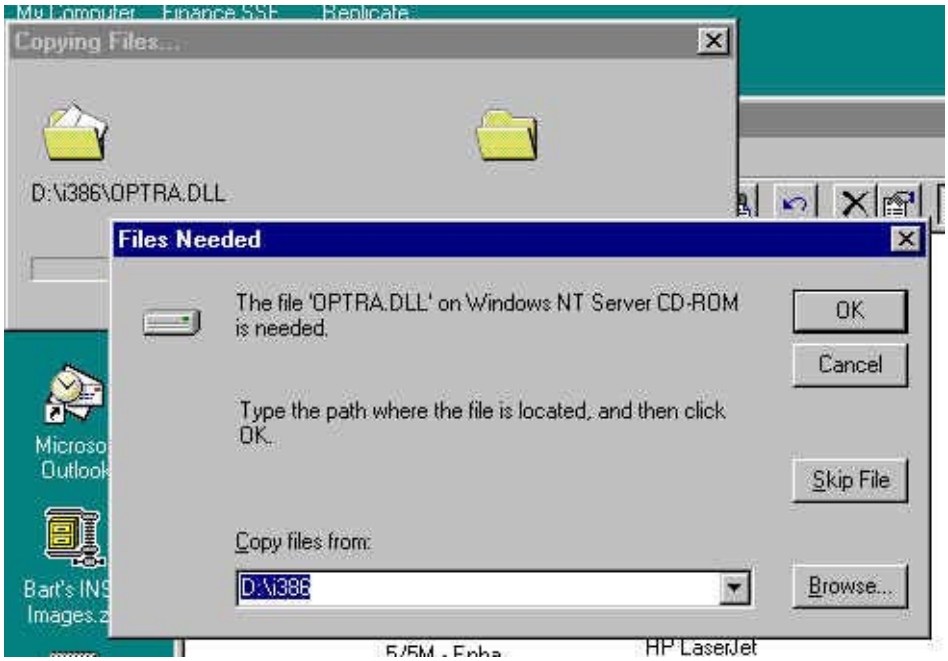

Figure 30

Figure 29 - At this point you must insert the "Microsoft Windows NT 4.0" in the CD ROM drive. Figure 30 will appear.

Figure 29

Figure 30 - Close this window and very quickly printer driver will be loaded and Figure 31 will appear.

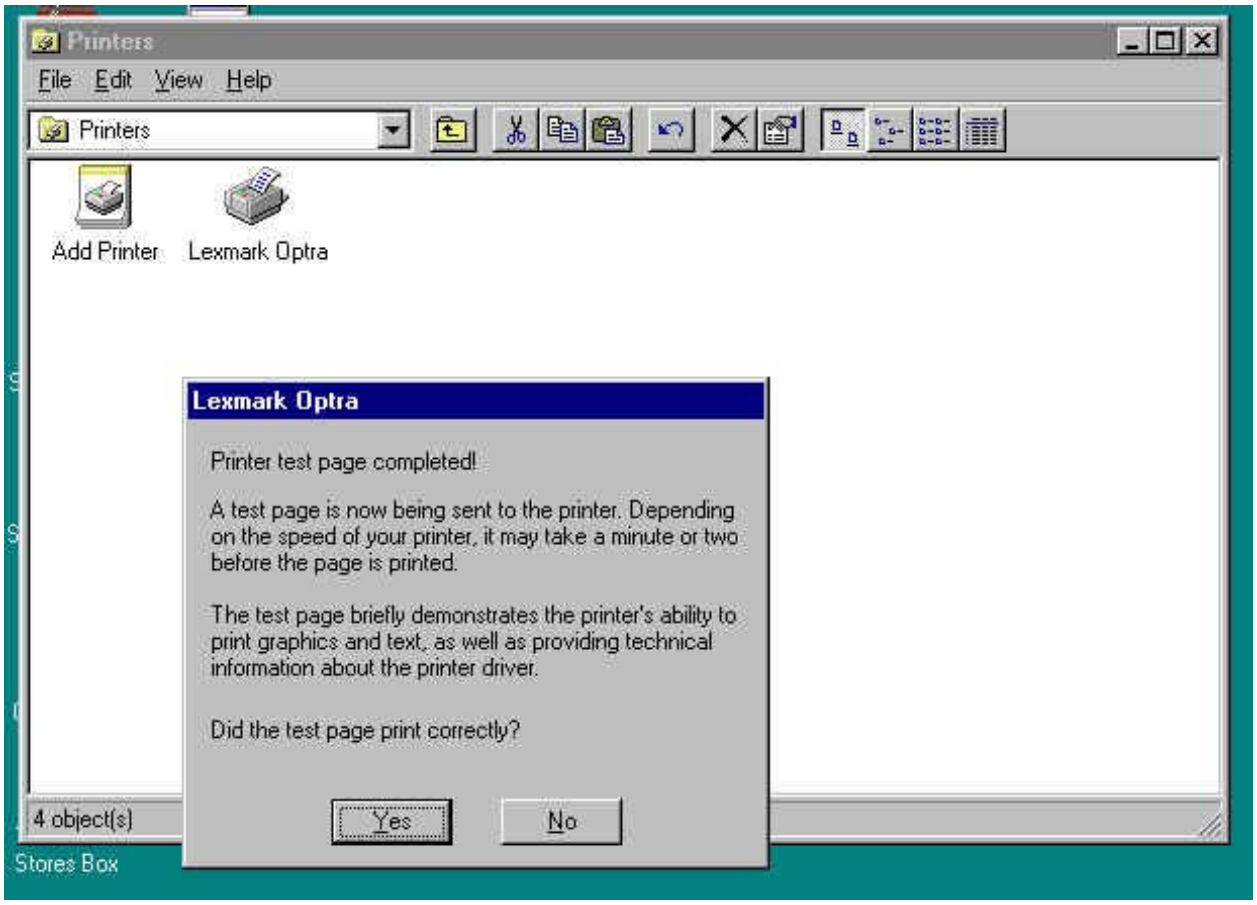

Figure 31

Figure 31 - Click the "Yes" button and a test page will be printed. YOU HAVE ADDED A PRINTER TO THE WORKSTATION.

YOU MUST REBOOT THE COMPUTER AT THIS TIME.

APPENDIX N

Microsoft Upgrade Procedures

Microsoft Service Pack 6a (SP6a) Installation

- Insert SP6a CD in CDRom Drive
- (Install CD will auto-run- click on hyper-text link “Install service pack 6 for
- Intel-based”)
- Confirm File Open – Click on Open
- Windows NT Service Pack Setup
- Click – Accept the License Agreement
- Click – Install (will start copying process & backup files)
- A box will appear indicating “NetFlex-3 sys is a vendor installed file”, do you want to update … Click on Yes
- Once the service pack install is finished remove the CD…Click on Restart
- Remove CD and restart computer

Note: After the Workstation reboot a message will appear “ Invalid Display Settings - New Graphics Installed”

- Click OK… Change Color Palette to 65,536 Colors
- change Desktop area to 800 x 600;
- Click Test… Click Ok to start test
- Select Yes for test complete
- Click Apply…then Click OK

Procedures for Creating Server Support Software

(Note: these procedures are for machines with an OS installed)

- Insert SmartStart CD into CDROM
- Boot or re-boot machine as necessary
- At the "System utilities" screen; double click "Create
- Support Software"
- At the diskette builder screen, expand the "Compaq" folder
- Scroll down the list and click to place an "x" next to "Compaq server support for Microsoft Windows NT 4.0 version 2.19A
- Click "Next"
- Leave the selection set to "Create software diskettes to floppy only"
- Click "Next"
- (Note: Be sure to use 5 DOS formatted floppies)
- Label the 1st disk as requested and insert it in the floppy drive
- Click "OK"
- Label the 2nd disk as requested and insert it in the floppy drive
- Click "OK"
- Label the 3rd disk as requested and insert it in the floppy drive
- Click "OK"
- Label the 4th disk as requested and insert it in the floppy drive
- Click "OK"
- Label the 5th disk as requested and insert it in the floppy drive
- Click "OK"
- Click "Finish"
- Click "Exit"
- At the "System Utilities" screen click "Exit"
- Remove the CD and press any key

Procedure for Changing Video Driver Settings

(SP6a must be installed before resolution can be changed)

- Right Click on the Desktop Icon
- Select Properties
- Select Settings tab
- Select Display type
- Select Change …Insert disk #5 of Compaq WinNT Server Support Disks
- Select "Have Disk"
- Select Browse
- Double click on Video
- Double click ATI_x1
- Select ATI Rage
- Click Open
- Click OK "Install from disk"
- Select ATI compatible display driver
- Select OK
- Select yes at the 3rd party driver
- (Message will appear – "warning… drivers will be copied)
- Select OK
- (Message will appear - Copying/Installing Driver was Successful)
- At Display Type Window…Click Close

APPENDIX O

Compaq Proliant ML370 procedures for configuring the Parallel port for use with ScoUnix ver 7.1.1

1. Boot the server
2. Watch for the message:"Press F10 To Enter System Utilities"
3. Press any key
4. With "System Configuration" selected press "Enter"
5. With "Configure Hardware" selected press "Enter"
6. Select "Continue" in the event you receive a yellow information windows concerning "Utility Configuration Revision"
7. Using the arrow keys scroll to "Review or modify hardware settings" and press "Enter"
8. Scroll to "Step 3: View or Edit Details" and press "Enter"
9. Scroll to "Integrated Interfaces" and select parallel then press "Enter"
10. Scroll to "LPT2" and press "Enter"
11. This takes you back to the previous page, "Step 3: View…" and LPT2 is now selected as the parallel port
12. With "LPT2" still highlighted press the F6 key
13. On the resource page for LPT2 scroll to DMA channel and press the "-" (minus key) until IR5 is selected
14. Press the F10 key
15. Press the F10 key
16. Scroll to "Step 5: Save and Exit" and press "Enter"
17. Select "Save the configuration and restart" and press "Enter"
18. At the "Reboot screen" press "Enter"

19. After reboot login as user "root" with the password "cpq1600" (observe case sensitivity)
20. Double click on the dtterm icon (looks like a little computer)
21. At the dtterm prompt type in "scoadmin" and press "Enter"
22. In the "System Administration" window scroll to the "Hardware" folder and double click
23. Double click on the Device Configuration Utility (DCU)
24. Scroll to and select "Software Device Drivers"
25. Scroll to "Miscellaneous" and press "Enter"
26. Press "Page Down"
27. With the cursor on "mfpd" press the spacebar
28. With "mfpd" still selected and an asterick now in the paranthesis press "F5"
29. This brings up the "Unixware Device Configuration Utility New Hardware Configuration" screen- press "F10"
30. Press "Enter"
31. Scroll to "Return to DCU Main Menu" and press "Enter"
32. Select "Hardware Device Configuration" and press "Enter"

33. Press “Page Down”
34. Scroll down to “mfpd” under “device name”
35. Tab over to the IRQ column and type in “5”
36. Tab over to the IOStart column and type in “3BC”
37. Tab over to the IOEnd column and type in “3BE”
38. Tab over to the DMA column and type in “1”
39. Press “F10”
40. Scroll to “Apply changes and exit DCU” and press “Enter”
41. Press “Enter” at the warning screen
42. In the “System Administration” window click on “File” then “Exit”
43. At the “dtterm” prompt type, “etc/conf/bin/idbuild –B” without the quotation marks and press “Enter”
44. A message indicating “the rebuild of the kernel is in progress” will appear
45. After the kernel is successfully rebuilt type in “shutdown –g0 –y” without the quotation marks and press “Enter”
46. After reboot the system will be ready for installation and use of a local printer with a parallel connection type of lpt1

APPENDIX P

Procedures to Upgrade Security on the SCO UNIXWARE 7.1.1 Server

There are several files that need to be modified on your SCO Unixware 7.1.1 Server. I'll list and walk-through each one below. Also, there are various operating system patches that will have to be applied to the system, these will discussed in greater detail below as well. You must be logged in as the root user for ALL tasks in this document.

(1) Open a terminal window and change directory to **"/etc/default**".

(2) Edit the "**login**" file and add a line to the end of the file to read, "**CONSOLE=/dev/console**". Next locate & change a line to read, "**MAXTRYS=3**". Next locate & change a line to read, "**LOGFAILURES=3**". Next locate & change a line to read, "**DISABLETIME=99999**". Save the file.

(3) These changes will ensure that the root user can ONLY login at the console and will hopefully make it more difficult for a hacker to continuously attempt to log into your system.

(4) Edit the "**passwd**" file and locate & change a line to read "**PASSLENGTH=8**". Save the file. This change will ensure that passwords are at least 8 alphanumeric characters in length.

(5) Edit the "**useradd**" file and locate & change a line to read "**INACT=90**". Save the file. This change will inactivate any accounts that have been idle for 90 days.

(6) Please ensure none of your users have blank passwords and make sure passwords are aged properly according to the policy in the SA manual.

(7) Another security 'risk' to our system is the C-compiler that is loaded with the Unixware 7.1.1 operating system. We will remove that now. Change directory to **"/usr/ccs/bin**". At the root prompt, type "**rm cc**" and press enter.

Note: This next section is to be completed only if **Update 7.1.1** is **NOT** on your system. To determine if it is, open a terminal window and type "**pkginfo update711**" and press enter. If you see "**update update711 Unixware 7 Update 7.1.1**", then skip to (2) below. Otherwise, the next part of the security upgrade is to apply the Update 7.11 package that is located on the **Unixware 7 Updates CD-ROM (Disk 2 of 3)** that came with your system. It will be applied using the SCO ADMIN tool.

1) Insert the Unixware 7 Updates CD-ROM (Disk 2 of 3) into the cd-rom drive. Ensure that you are logged in as the root user. Enter **Sco Admin** and select "**Software Management**". Then select "**Application Installer**". Click on "**Update View**". Scroll down and highlight "**Update 7.1.1**", then click on "**Install**". Accept defaults for any question asked. When the update has completed, exit the SCO Admin tool. Open a terminal window and reboot the system by typing the command, "**shutdown –i6 –g0 –y**".

2) Next part of the security upgrade is a process, which entails applying 34 SCO operating system patches. Many require you to reboot the system after application of a patch because it has to rebuild the kernel. Entire process from start to finish will take approximately 1.5 hours. At this time, the patches and associated text files documenting what is included in each patch can be obtained either by cd-rom (from SEC-LEE), downloaded from a server here at SEC-LEE (to be determined) or from the SCO/CALDERA website (http://www.caldera.com/support/ftplists/uw7list.html). Basically the patches are installed one by one and you will have to place them in a directory on your server. I suggest a directory called "**scopatches**" (**Note:** If patches are compressed, utilize the "uncompress" command to uncompress them all). After all the patches are in this directory, you will change to that directory and install one at a time. I'll list each one below and also which patches require a system reboot. For DOIM purposes, more recent patches have superseded some patches and I'll make note of these at the end of this section. It's **important** to note, the patches will have to be loaded in the order I list below due to the requirement that some patches require certain ones to be loaded prior to their installation.

   (a) **PTF7603K (Sysdump, VMM Features and Various Fixes Supplement)**. Open a terminal window and change directory to "scopatches". At the command prompt, type "**pkgadd –d /scopatches/ptf7603k**" and press enter. Accept all defaults by pressing enter. After the patch has been installed, reboot the system (while rebooting the kernel will be rebuilt).

   (b) **PTF7701B (llmul Driver and Emergency Recovery Supplement)**. Open a terminal window and change directory to "scopatches". At the command prompt, type "**pkgadd –d /scopatches/ptf7701b**" and press enter. Accept all defaults by pressing enter. After the patch has been installed, reboot the system (while rebooting the kernel will be rebuilt).

   (c) **PTF7715A (Networking and Mem Supplement)**. Open a terminal window and change directory to "scopatches". At the command prompt, type "**pkgadd –d /scopatches/ptf7715a**" and press enter. Accept all defaults by pressing enter. After the patch has been installed, reboot the system (while rebooting the kernel will be rebuilt).

   (d) **PTF7717A (Unixware 7.1.1 Supplement)**. Open a terminal window and change directory to "scopatches". At the command prompt, type "**pkgadd –d /scopatches/ptf7717a**" and press enter. Accept all defaults by pressing enter. After the patch has been installed, reboot the system (while rebooting the kernel will be rebuilt).

(e) **PTF7710A (ntp Buffer Overflow Supplement)**. Open a terminal window and change directory to "scopatches". At the command prompt, type "**pkgadd –d /scopatches/ptf7710a**" and press enter. Accept all defaults by pressing enter. No system reboot is required after this patch has been installed.

(f) **PTF7686A (Audit Supplement)**. Open a terminal window and change directory to "scopatches". At the command prompt, type "**pkgadd –d /scopatches/ptf7686a**" and press enter. Accept all defaults by pressing enter. No system reboot is required after this patch has been installed.

(g) **PTF7676A (asyc and iasy Driver)**. Open a terminal window and change directory to "scopatches". At the command prompt, type "**pkgadd –d /scopatches/ptf7676a**" and press enter. Accept all defaults by pressing enter. After the patch has been installed, reboot the system (while rebooting the kernel will be rebuilt).

(h) **PTF7664A (cu Security Supplement)**. Open a terminal window and change directory to "scopatches". At the command prompt, type "**pkgadd –d /scopatches/ptf7664a**" and press enter. Accept all defaults by pressing enter. No system reboot is required after this patch has been installed.

(i) **PTF7663A (eelsd Security Supplement)**. Open a terminal window and change directory to "scopatches". At the command prompt, type "**pkgadd –d /scopatches/ptf7663a**" and press enter. Accept all defaults by pressing enter. No system reboot is required after this patch has been installed.

(j) **PTF7646B (lp Driver Supplement)**. Open a terminal window and change directory to "scopatches". At the command prompt, type "**pkgadd –d /scopatches/ptf7646b**" and press enter. Accept all defaults by pressing enter. After the patch has been installed, reboot the system (while rebooting the kernel will be rebuilt).

(k) **PTF7644C (intmap, ldterm and ptem Supplement)**. Open a terminal window and change directory to "scopatches". At the command prompt, type "**pkgadd –d /scopatches/ptf7644c**" and press enter. Accept all defaults by pressing enter. After the patch has been installed, reboot the system (while rebooting the kernel will be rebuilt).

(l) **PTF7642A (pppGUI Supplement)**. Open a terminal window and change directory to "scopatches". At the command prompt, type "**pkgadd –d /scopatches/ptf7642a**" and press enter. Accept all

defaults by pressing enter. No system reboot is required after this patch has been installed.

(m) **PTF7641D (mc01 Driver Supplement)**. Open a terminal window and change directory to "scopatches". At the command prompt, type "**pkgadd –d /scopatches/ptf7641d**" and press enter. Accept all defaults by pressing enter. After the patch has been installed, reboot the system (while rebooting the kernel will be rebuilt).

(n) **PTF7634A (mtrr Driver Supplement)**. Open a terminal window and change directory to "scopatches". At the command prompt, type "**pkgadd –d /scopatches/ptf7634a**" and press enter. Accept all defaults by pressing enter. After the patch has been installed, reboot the system (while rebooting the kernel will be rebuilt).

(o) **PTF7632E (pci Driver Supplement)**. Open a terminal window and change directory to "scopatches". At the command prompt, type "**pkgadd –d /scopatches/ptf7632e**" and press enter. Accept all defaults by pressing enter. After the patch has been installed, reboot the system (while rebooting the kernel will be rebuilt).

(p) **PTF7627B (osocket Driver Supplement)**. Open a terminal window and change directory to "scopatches". At the command prompt, type "**pkgadd –d /scopatches/ptf7627b**" and press enter. Accept all defaults by pressing enter. After the patch has been installed, reboot the system (while rebooting the kernel will be rebuilt).

(q) **PTF7624B (diskadd and diskrm Supplement)**. Open a terminal window and change directory to "scopatches". At the command prompt, type "**pkgadd –d /scopatches/ptf7624b**" and press enter. Accept all defaults by pressing enter. No system reboot is required after this patch has been installed.

(r) **PTF7620C (fur Supplement)**. Open a terminal window and change directory to "scopatches". At the command prompt, type "**pkgadd –d /scopatches/ptf7620c**" and press enter. Accept all defaults by pressing enter. No system reboot is required after this patch has been installed.

(s) **PTF7617C (hw Utility Supplement)**. Open a terminal window and change directory to "scopatches". At the command prompt, type "**pkgadd –d /scopatches/ptf7617c**" and press enter. Accept all defaults by pressing enter. No system reboot is required after this patch has been installed.

(t) **PTF7614C (scodb Driver Supplement)**. At the command prompt, type "**pkgadd –d /scopatches/ptf7614c**" and press enter. Accept all defaults by pressing enter. After the patch has been installed, reboot the system (while rebooting the kernel will be rebuilt).

(u) **PTF7611B (pdimkdev Supplement)**. Open a terminal window and change directory to "scopatches". At the command prompt, type "**pkgadd –d /scopatches/ptf7611b**" and press enter. Accept all defaults by pressing enter. No system reboot is required after this patch has been installed.

(v) **PTF7610D (st01 Driver Supplement)**. At the command prompt, type "**pkgadd –d /scopatches/ptf7610d**" and press enter. Accept all defaults by pressing enter. After the patch has been installed, reboot the system (while rebooting the kernel will be rebuilt).

(w) **PTF7609C (pkgadd Supplement)**. Open a terminal window and change directory to "scopatches". At the command prompt, type "**pkgadd –d /scopatches/ptf7609c**" and press enter. Accept all defaults by pressing enter. No system reboot is required after this patch has been installed.

(x) **PTF7607E (libc Supplement)**. Open a terminal window and change directory to "scopatches". At the command prompt, type "**pkgadd –d /scopatches/ptf7607e**" and press enter. Accept all defaults by pressing enter. No system reboot is required after this patch has been installed.

(y) **PTF7604G (Hot Plug NIC Supplement)**. At the command prompt, type "**pkgadd –d /scopatches/ptf7604g**" and press enter. Accept all defaults by pressing enter. After the patch has been installed, reboot the system (while rebooting the kernel will be rebuilt).

(z) **PTF7441E (libmas Supplement)**. Open a terminal window and change directory to "scopatches". At the command prompt, type "**pkgadd –d /scopatches/ptf7441e**" and press enter. Accept all defaults by pressing enter. No system reboot is required after this patch has been installed.

(aa) **PTF7426F (ksh Supplement)**. Open a terminal window and change directory to "scopatches". At the command prompt, type "**pkgadd –d /scopatches/ptf7426f**" and press enter. Accept all defaults by pressing enter. No system reboot is required after this patch has been installed.

(bb) **PTF7410I (libthread Supplement)**. Open a terminal window and change directory to "scopatches". At the command prompt, type "**pkgadd –d /scopatches/ptf7410i**" and press enter. Accept all defaults by pressing enter. No system reboot is required after this patch has been installed.

(cc) **PTF7130D (sendmail 8.10.1)**. Open a terminal window and change directory to "scopatches". At the command prompt, type "**pkgadd –d /scopatches/ptf7130d**" and press enter. Accept all defaults by pressing enter. No system reboot is required after this patch has been installed.

(dd) **PTF7080D (ticots and ticotsor Supplement)**. At the command prompt, type "**pkgadd –d /scopatches/ptf7080d**" and press enter. Accept all defaults by pressing enter. After the patch has been installed, reboot the system (while rebooting the kernel will be rebuilt).

(ee) **PTF7045G (Intel Microcode Driver)**. Open a terminal window and change directory to "scopatches". At the command prompt, type "**pkgadd –d /scopatches/ptf7045g**" and press enter. Accept all defaults by pressing enter. No system reboot is required after this patch has been installed.

(ff) **PTF7438G (Unixware 7.X Network Printing Supplement)**. Open a terminal window and change directory to "scopatches". At the command prompt, type "**pkgadd –d /scopatches/ptf7438g**" and press enter. Accept all defaults by pressing enter. No system reboot is required after this patch has been installed.

(gg) **IAVA A2002-0006 (Buffer Overflow in Common Desktop Environment (CDE) Subprocess Control (SPC) Server)**. This patch can be located at, ftp://stage.caldera.com/pub/security/openunix/CSSA-2001-SCO.30/ or obtained from SEC-LEE via cd-rom. Open a terminal window and change directory to "scopatches". At the command prompt, type "**pkgadd –d /scopatches/erg711881**" and press enter. Accept all defaults by pressing enter. No system reboot is required after this patch has been installed

(hh) **IAVA B2002-0004 (File Globbing Heap Corruption Vulnerability)**. Open a terminal window and change directory to "scopatches". At the command prompt, type "**pkgadd –d /scopatches/erg501215b**" and press enter. Accept all defaults by pressing enter. No system reboot is required after this patch has been installed.

For DOIM purposes or for your information, the following patches were not applied since they were superseded by new patches above:

(1) ptf7687a (FTP Server Manager Supplement) has been superseded by ptf7715a for the Unixware 7.1.1 platform only.
(2) ptf7658c (FTP Service Supplement) has been removed and superseded by ptf7715a.
(3) ptf7655a (in_telnetd Supplement) has been removed and superseded by ptf7715a.
(4) ptf7636a (vol Driver Supplement) has been superseded by ptf7717a for Unixware 7.1.1 only.
(5) ptf7625b (cpio Supplement) has been superseded by ptf7717a for Unixware 7.1.1 only.
(6) ptf7616b (specfs Driver Supplement) has been removed and is superseded by ptf7717a.
(7) ptf7612b (ping Supplement) has been removed and is superseded by ptf7715a.
(8) ptf7608c (sd01 Driver Supplement) has been superseded by ptf7603k.
(9) ptf7602d (vxfs Driver Supplement) was removed and has been superseded by ptf7717a.
(10) ptf7601h (inet and socksys Driver Supplement) has been superseded by ptf7603k.
(11) ptf7058d (mccntl Supplement) was removed and has been superseded by ptf7641d.
(12) ptf7613a (iasy Driver Supplement) has been superseded by ptf7676a for Unixware 7.1.1 only.
(13) ptf4141b (ArcserveIT v6.61 Maintenance Supplement) is not required since the ArcServe tool is not utilized by our system.

Disabling System Services:

Several services on your Unixware 7.1.1 server will be disabled: CHARGEN, DAYTIME, DISCARD, ECHO, FINGER, LOGIN, TALK, NETSTAT, NFSD, NTALK, POP-3, SNMP, SMTP, SUNRPC, & SYSTAT.

(1) Login as the root user and open a terminal window.
(2) Change directory to "**/etc/inet**".
(3) Make backup copies of the "**inetd.conf**" and "**services**" files. (Use the cp (copy) command).
(4) Then edit the "**inetd.conf**" file and comment out the lines beginning with "**chargen**", "**daytime**", "**discard**", "**echo**", "**finger**", "**login**", "**pop-3**", "**talk**", "**netstat**", "**ntalk**", & "**systat**". Save the file.
(5) Next, edit the "**services**" file and comment out the lines beginning with "**chargen**", "**daytime**", "**discard**", "**echo**", "**finger**", "**login**", "**netstat**", "**nfsd**", "**pop-3**", "**talk**" "**ntalk**" "**smtp**", "**snmp**", "**sunrpc**", & "**systat**". Save the file.
(6) Change directory to "**/etc/rc2.d**". Rename "**S73snmp**" to "**s73snmp**". This will prevent the "SNMP" service from starting when the system is booted up.

(7) Rename the "**S81sendmail**" file to "**s81sendmail**". This will prevent the "SMTP" service from starting when the system is booted up.

(8) Change directory to "**/etc/rc3.d**". Rename "**S22nfs**" to "**s22nfs**". This will prevent the "NFS" service from starting when the system is booted up.

Changing the Informix password:

Change the **Informix** password to one of 8 alphanumeric characters. Ensure you are the root user. At the root prompt, type "**passwd informix**" and press enter. Enter the 'new' password at the "**new password:**" field. Enter the 'new' password at the "**Re-enter new password:**" field. If the two passwords match, the change will be accepted. If not, repeat the procedure.

Applying Advisory No. CSSA-2002-SCO.5.1:

Advisory number: CSSA-2002-SCO.5.1 Subject: encrypted password disclosure
Issue date: 2002 February 18

Problem Description: The first version of this advisory specifically mentioned a file that was, indeed, readable by others and contained the encrypted root password, but the directories leading up to it were not searchable. Therefore, it was not a true vulnerability. After some research, Caldera has discovered files that are accessible to others that do contain information that might be used to compromise the system's security. After installation of the product, several files are left readable by all users. These files contain, among other things, encrypted passwords.

Vulnerable Supported Versions:

Operating System	Version	Affected Files
UnixWare 7	All	/usr/ns-home/admserv/admpw /usr/internet/httpd/admserv/admpw

Caldera recommends that all affected systems change the file modes of the following files to be readable only by root (the two permission changes below will be completed by the load package:

#chmod 400 /usr/ns-home/admserv/admpw
 # chmod 400 /usr/internet/httpd/admserv/admpw

APPENDIX Q

Procedures to Upgrade Security on the Windows NT 4.0 Server and Mintronix P5000 POS

The user is responsible to ensure that all current & required DOIM (or local IMO) Windows NT 4.0 hotfixes, virus protection tools with current signature files, IAVA patches, screensaver, DOD Banner, and service packs are applied to each server and workstation. This document details how to 'increase' security on Windows NT 4.0 Servers and Workstations based upon a thorough scan from an independent source on our AFMIS SCP13-02 test bed. This document is not all-inclusive and will be modified as we learn and discover better ways of protecting the systems.

The following list is what we will discuss in greater detail in this document:

- Change password for the Mintronix & administrator accounts on each POS and Server.
- Rename the administrator account on each POS and Server.
- Change password for the Mintronix user in the NtAutoLogOn.exe program on each POS to one of 8 alphanumeric characters.
- Enable auditing on each POS and the server.
- Modify the account policy for each user on each POS and Server.
- Change the MSSQL default SA account password from null to one of 8 alphanumeric characters.
- Modify System Policy to display DOD banner and to not display last logged on user name.

NOTE: The Mintronix P5000 POS register does not have a keyboard by default and has an automatic login for the Mintronix user. In order to make the changes below you will have to borrow the keyboard from the server temporarily. To login as administrator, you will have to press and hold the '**Shift**' and the '**F10**' keys together as you are logging off as the '**Mintronix**' user. These keys that you hold down will 'break' the automatic login and then you can login as administrator.

How to change the Mintronix & Administrator password on each POS and Server.

1) Login as administrator on the POS.
2) Click '**Start**', '**Programs**', '**Administrative Tools (Common)**', '**User Manager**'.
3) After the User Manager window opens up, highlight the '**Mintronix**' user,
4) Then click on '**User**' from the menu.
5) Then click on '**Properties**' to open up the properties for the Mintronix user.
6) Click or tab to the '**Password**' field.
7) Highlight and delete the old password.
8) Enter the new 8 alphanumeric character password.
9) Click or tab to the '**Confirm Password**' field.

10) Highlight and delete the old password.
11) Enter the new 8 alphanumeric character password.
12) Click on '**Ok**' to apply changes.
13) Repeat this process for the administrator account.
14) Ensure this task is accomplished on every POS & Server.

How to rename the Administrator account on each POS and Server.

1) Login as administrator on the POS.
2) Click '**Start**', '**Programs**', '**Administrative Tools (Common)**', '**User Manager**'.
3) After the User Manager window opens up, highlight the '**Administrator**' user.
4) Then click on '**User**' from the menu.
5) Then click on '**Rename**' to open up the '**Rename**' dialog box.
6) Enter '**afmisadmin**' in the '**change to:**' field.
7) Click on '**Ok**' to apply changes.
8) Ensure this task is accomplished on every POS & Server.

How to change the Mintronix password in the NtAutoLogOn.exe program.

1) Login as administrator on the POS.
2) Open the explorer program by clicking on '**Start**', '**Programs**', '**Windows NT Explorer**'.
3) Expand the '**Program Files**' folder.
4) Expand the '**Maximus**' folder.
5) Expand the '**SmartCard Foodservice**' folder.
6) Double click on the **NtAutoLogOn.exe** program to open it.
7) Change '**User Name**' to '**Mintronix**'.
8) Then change the Mintronix password to the same 8 alphanumeric character password that you changed in (1) above, in both the '**Password**' and '**Verify Password**' fields.
9) Click on '**Save**' to save changes.
10) Click on '**Exit**' to exit the NtAutoLogOn.exe program.
11) Repeat this procedure on every POS.

How to enable auditing on POS and Server.

1) Login as administrator on POS.
2) Click '**Start**', '**Programs**', '**Administrative Tools (Common)**', '**User Manager**'.
3) After the '**User Manager**' window opens up, click on '**Policies**' from the menu, and then click on '**Audit**' to open up the '**Audit Policy**' dialog box.
4) Check the box called '**Audit These Events**', then check '**Success**' and '**Fail**' for all seven events.
5) Click on '**Ok**' to apply changes. Repeat this procedure on every POS and server.

How to modify the account policy for each user on each POS and Server.

1) Login as administrator on POS.
2) Click '**Start**', '**Programs**', '**Administrative Tools (Common)**', '**User Manager**'.
3) After the '**User Manager**' window opens up, click on '**Policies**' from the menu, and then click on '**Account**' to open up the '**Account Policy**' dialog box.
4) Change the **Maximum Password Age** to '**90**', **Minimum Password Age** to '**89**', **Minimum Password Length** to '**8**', and **Password Uniqueness** to '**24**'.
5) Check to enable '**Account lockout**'.
6) Then change **Lockout after** to '**3**' bad logon attempts.
7) Check to enable **Lockout Duration** to '**Forever (until admin unlocks)**'.
8) Click on '**Ok**' to apply changes. Repeat this procedure on every POS and server.

How to change the MSSQL default SA account password from null to one of 8 alphanumeric characters.

1) Login as administrator on server.
2) Click '**Start**', '**Programs**', '**Microsoft SQL Server 7.0**', '**Enterprise Manager**'.
3) After the '**Enterprise Manager**' window opens up, then expand the '**SQL Server Group**' folder, expand your '**server's name**' folder, expand '**Security**' folder, double-click '**Logins**'.
4) On the right hand side highlight the '**sa**' account and right click, and then click on '**Properties**'.
5) Enter an 8 alphanumeric password into the password field.
6) Click on '**Apply**'.
7) Enter the same password again at the next dialog box.
8) Click on '**Ok**'.
9) Click on '**Ok**'.
10) Close the Enterprise Manager window and reboot the server.

How to change the system policy to display DOD banner & to not display last logged on user name.

1) Login as administrator on server.
2) Click '**Start**', '**Programs**', '**Administrative Tools (Common)**', '**System Policy Editor**'.
3) After the '**System Policy Editor**' window opens up, click on '**File**' from the menu, and then click on '**Open Registry**' to open up the '**System Policy Editor – Local Registry**' window.
4) Double click on '**Local Computer**' icon (should already be highlighted).
5) In the '**Local Computer Properties**' window, expand the '**Windows NT System**' folder.
6) Expand the '**Logon**' folder. Check the box called '**Logon Banner**'.
7) Enter a caption for the '**Caption**' field (ex. DOD Warning!!!).
8) Enter text for the '**Text**' field (ex. This Computer is For Official Use Only!!!).

9) Check the box called '**Do not display last logged on user name**'.
10) Click on '**Ok**'.
11) Click on '**File**' from the menu, then click on '**Save**'.
12) Changes will be saved to registry.
13) Close the System Policy Editor window and logoff.
14) Try to logon as administrator to test the DOD banner and verify that last logged on user is no only displayed.

LIST OF ACRONYMS

ADP	Automatic Data Processing
AFMIS	Army Food Management Information System
AIS	Automated Information System
AJK	AFMIS assigned program control number prefix
ARCS	Army Ration Credit System
ASCII	American Standard Code for Information Exchange
AT&T	American Telephone and Telegraph
BDFA	Basic Daily Food Allowance Table
BPA	Blanket Purchase Agreement
BPI	Bits Per Inch
CAH	Customer Account Header
CAO	Customer Assistance Office
CASCOM	United States Army Combined Armed Support Command
CAT	Customer Account Trailer
CCB	Configuration Control Board
CDN	Customer Document Number Table
CE	Computer Engineer
CIF	Customer Information File
CINC	Customer Information Not Current Table
COF	Customer Order File
COM	Communications File
COOP	Continuity of Operations
CPI	Characters Per Inch
CPS	Characters Per Second
CPU	Central Processing Unit
CRF	Candidate Requisition File
CSHC	Common Services Headcount 2969 Table
CTL	Report Control Log Table
CXV	BPA Cross Reference Table
DA	Department of the Army
DAS	Dining Facility Account Status Table
DB	Database
DBA	Database Administrator
DCL	Development Center Fort Lee
DD	Departmernt of Defense
DDN	Defense Data Network
DFC	Dining Facility Contract Table
DFCD	Dining Facility Closed Dates Table
DFF	Delivery Frequency File
DFO	Dining Facility Operations

LIST OF ACRONYMS

DFX	Dining Facility Transfer File
DHF	Document History File
DHI	Document History Input Table
DHO	Document History Output Table
DISMS	Defense Integrated Subsistence Management System
DOIM	Directorate of Information Management
DPSC	Defense Personnel Support Center
DSC	Design Cap File
DSO	Defense Support Office
DVD	Direct Vendor Delivery
EBCIDIC	Extended Binary Coded Decimal Interchange Code
ECC	Error Correction Code
ECP	Engineering Change Proposal
ECP-S	Engineering Change Proposal-Software
EM	End Users Manual
EOD	End of Day
EOM	End of Month
E-PORTS	Enhanced Peripheral Ports Controller
ERF	Equipment Replacement File
EUM	End User Manual
FEDSIM	Federal Systems Integration and Management Center
FRIS	Field Ration Issue System
FXM	Fiber optic Multiplexer
GC	Guidence Call
H3161	3161 Header Table
HSD	High Speed Draft
IAW	In Accordance With
ICP	Interim Change Package
ID	Identification
IFA	Installation Food Advisor
ILH	Issue List Header Table
I/O	Input/Output
ISSFREQ	Issue Frequency Table
ISSM	Information System Security Manager

LIST OF ACRONYMS

ISSO	Information System Security Officer
IUE	Installation Unique External File
IUF	Installation Uniques File
IUF2	Installation Uniques File 2
LCD	Liquid Crystal Display
LED	Light Emitting Diode
LPO	Local Purchase Order Table
LPP	Local Purchase Price Table
MACOM	Major Army Command
MCI	Meal Cost Information Table
MIF	Master Item File
MIFINV	Master Item File Inventory
MMF	Master Menu File
MMR	Master Menu Recap Table
NLQ	Near letter quality
NSN	National Stock Number
NVRAM	Nonvolatile Ram
OEF	Obligation Estimate File
OHC	Other Headcount
OIS	Other Issues Table
OM	Operation Manual
OS	Operating System
PA	Proponent Agency
PCN	Product Control Number
POC	Point-of-contact
PIIN	Procurement Instrument Identification Number
PR	Problem Report
PRC	Price Table
RAM	Random Access Memory
RCF	Receipt Control File
RCH	Recipe Control Header
RCL	Report Control Log
REF	Master Item File Reference File
RHC	Reimbursable Headcount 2969 File
RHF	Recipe Header File
RIF	Recipe Instruction File

LIST OF ACRONYMS

RIN	Recipe Ingredient File
RISA	Reimbursable Issues/Sales Account Table
RISC	Reduced instruction set chip
ROS	Reports of Survey
RSFA	Reimbursable special food allowance
SA	System Administrator
SASF	Semi-automatic Sheet Feeding
SCC	Source Code Change
SCP	Software Change Proposal
SCR	System Change Request
SCSI	Small Computer System Interface
SEES	Standard Entry/Exit Service
SFA	Special Food Allowance
SIF	System Interface File
SOC	Statements of Charges
SOP	Standing Operating Procedures
SPSC	Special purpose synchronous controller
SQL	Structured query language
STAMIS	Standard Army Multi-Command Management Information System
STARFIARS	Standard Army Financial Inventory Accounting and Reporting System
SYSADM	System Administration
T3161	3161 Trailer Table
TASO	Terminal Area Security Officer
TCC	Telecommunications Center
TIN	Transaction Input (TISA In) File
TISA	Troop Issue Subsistence Activity
TISA-W	TISA-Warehouse
TISO	Troop Issue Subsistence Officer
TOF	Top-of-form
TOT	Transaction Output (TISA Out) File
TRF	Transaction Register File
US2	Unclassified-Sensitive
USACASCOM	United States Army Combined Armed Support Command
USAISSSEC	United States Army Information System Software Engineer Center
USO	User Support Office
UTL	Utility
VA	Virginia
VDD	Version Description Document

LIST OF ACRONYMS

VIF	Vendor Information File
VOF	Vendor Order File
VRGC	Voucher Register and General Control
VTOC	Volume Table of Contents
XFR	Transfers

LIST OF ACRONYMS

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